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ART. I.—*Displacement of the Uterus, and some other diseases peculiar to females, with Cases.* By R. L. SCRUGGS, M. D., of Germantown, Tennessee.

Perhaps no part of our extensive country furnishes, for its population, a greater amount or variety of disease than the western district of Tennessee. Its numerous swamps, (particularly in that portion of it bordering on the Mississippi river) traversed by small sluggish streams —its comparatively recent settlement, and generally by poor emigrants from the Atlantic States, who are necessarily compelled to live in indifferent log cabins; and the consequent exposure of both male and female, to a most variable and humid atmosphere, will, I think, sufficiently account for it. Add to this the annual importation, by steamers on the Mississippi, of all the exanthematous and

other contagious diseases, with their grave sequelæ, and we have no difficulty in accounting for the amount and variety of diseases generally to be met with here.

This being the case, it is not at all singular that we find diseases of females here, numerous and grave; and it is upon the symptoms and treatment of a few of the most remarkable of these cases that I propose to offer some reflections in this paper.

On the 26th of June, 1848, I visited Mrs. W., æt. 24. She was greatly emaciated; slight cough; tenderness along the course of the spine, and pain in the region of the uterus; countenance expressive of great anxiety and suffering. She had suffered for many months, and was growing worse daily, maugre the attentions of several medical men, to whom it had not probably occurred to make a vaginal examination; or if it had, they had been restrained from asking permission, from ideas of false delicacy, greatly to the injury of the patient and their own reputation. Her nervous system was so seriously affected that she could not converse without shedding tears; and she became so much agitated and wild at times, as to cause serious apprehensions on the part of her husband, that there would be a permanent loss of the mental faculties. With considerable difficulty I obtained her consent to make a vaginal examination, and found the uterus prolapsed and retroverted. I succeeded, without much difficulty, in overcoming the retroversion and placing the organ in its proper position, (for it was neither inflamed nor enlarged)—after which I introduced a glass globe pessary, which retained it in situ until a course of medication could be instituted to relieve the morbid condition of the system, and give tenacity and strength to the debilitated and relaxed uterus and its appendages. To accomplish which, I instituted the following treatment:—directed the spine to be blistered six inches over the dorsal vertebræ, and a stimulating liniment to be rub-

bed above and below, twice a day, until the blistered surface should heal; then apply the blister below, and rub above with the liniment. At the same time I directed her to take half grain doses of proto. iod. mer., mixed with ext. taraxacum, morning and evening, keeping the bowels gently soluble with any mild aperient. To take five drops of diluted nitric acid (℥j. nitric acid to ℥j. water) in sweetened water three times a day, gradually increasing the quantity for five or six days, unless some unpleasant effects resulted from it; in which event, the quantity was to be diminished, or the article discontinued for a time; and a solution of iodine and iod. potassium, (iodine grs. x, iod. potas. grs. xx, aqua ℥j) in infusion of sarsaparilla, substituted;—to commence this in ten drop doses, three times a day, gradually increasing to thirty or forty. After pursuing this course for three weeks, I put her upon the preparations of iron, a generous diet, and gentle exercise in the open air. She improved rapidly, and is now in good health.

Another case of displacement of the uterus, differing, however, in many respects from the foregoing, which I had under treatment at the same time, was Mrs. S., æt. 34, the mother of several children. The history of the case, as I learned from herself, was, that about four weeks previous to my visit, in walking from the kitchen to the dining room, with a dish in each hand, her foot slipped, and she fell; to prevent the dishes from being broken she had elevated both hands, making no effort with them to save herself from injury; that she immediately felt severe pain in the "small of the back," went to bed and sent for a physician. Since that time there had been constantly passing from the uterus, in small quantities, a thick dark colored fluid, attended with a great deal of pain. She said that the physician had given her medicines of various kinds, without the slightest benefit. Upon questioning her, I learned that no internal examination had been

made, nor any request for permission to make one. The bowels had been irregular, and when hardened feces did pass, it was with pain and difficulty, and were flattened out as if pressed upon by some resisting body. She had become extremely low spirited, and had almost despaired of ever recovering. I told her that I suspected displacement of the womb, and explained to her the necessity of a vaginal examination; to which, after a little hesitation, she yielded. In this examination, the first thing that arrested my attention, was a large, slightly yielding, and somewhat elastic tumor in the recto-vaginal space; so large and peculiar to the touch, that I at first doubted whether it was an extraneous growth, or the fundus of the uterus. I suspected, at first, retroversion, but upon examination, several circumstances were wanting to confirm this diagnosis. The os uteri, instead of being under the symphysis pubis and impinging upon the urethra, was found nearly in its natural position, looking downwards and a little forward, while the cervix seemed to be pushed a little anterior by the tumor behind. This was a little perplexing for a time, but, after a patient examination, I distinctly recognized a displacement that I had never appreciated before, to wit: retroflexion of the body of the uterus. The organ being considerably enlarged and tender to the touch, hypertrophied and inflamed, as I thought, and bowels somewhat constipated, I determined not to attempt its replacement at once, but endeavor to reduce the inflammation and enlargement, if possible, first;—to accomplish which, wet cups were applied over the hypogastrium and sacrum, and an aperient administered at intervals to evacuate the contents of the bowels and keep them soluble. For the hip bath, which I considered desirable, but which could not be used without great pain and inconvenience, warm fomentations were substituted, and used several times a day, for three days. At my next visit, finding the organ in a more favorable condition for

the operation, I placed her upon her knees and elbows, introducing the index finger of my left hand into the os tincæ, while with my right hand I passed a sperm candle into the rectum. I thus pressed upon the tumor with the candle, while I manipulated with the left hand, and in this way succeeded in a few minutes in returning the organ to its normal position. She was then put to bed, and requested to remain in horizontal, and, as nearly as possible prone position, until she should be satisfied that she could assume the erect, without displacing the womb.—She was then put upon the proto-iod. mer. in half grain doses twice a day, with inf. senna, to move the bowels when necessary; and a solution of iodide of potassium, commencing with gtts. x, three times a day, in a little sweetened water, and increasing to 40 or 50 drops—solution of the following strength: hydriodate potash grs. xxx, aqua ℥j. The iodide mer. was discontinued in the course of three or four days, but the potash continued to the end of the treatment. She improved handsomely—was entirely well in six weeks—has menstruated regularly ever since, and is now in the enjoyment of perfect health.

M. Velpeau remarks that flexions of the uterus are frequently mistaken for engorgement of that organ;—which latter condition, he thinks, is extremely rare; but I cannot conceive why both conditions should not exist at the same time. Indeed, it seems to me, that a posterior flexion of the uterus is precisely the condition best calculated to bring about this state of things. When we are told, too, that the uterus thus bent upon itself, offers an insurmountable obstacle to the passage of the semen into the cavity of the organ, and in this way causing sterility: we would naturally conclude that the blood vessels were constricted, and, to a certain extent, prevented the return of the venous blood. Add to this the lesion of function that must necessarily exist under such circumstances

which, to a certain extent, would prevent an appropriation in the natural way, of the blood sent there periodically; and we must conclude, I think, that unless the organ is replaced very soon after the accident, engorgement will inevitably follow. Whether true hypertrophy exists undr such circumstances, is not altogether so clear.

While on a visit to a patient nine miles distant from my residence, in September, 1847, I was requested by Mr. B. (the gentleman at whose house the patient was) to ride with him half a mile out of my way, to see a lady who was supposed to be dying with malignant disease of the uterus. She had requested Mr. B. to bring me to see her at my next visit to his house. I found her in a most deplorable condition indeed, unable, from extreme exhaustion, to assume the sitting posture, without assistance; greatly emaciated, with a dirty yellow tinge of the face; an ugly loose mucous cough, which seemed to jar the whole contents of the thorax; and tenderness at many points along the course of the spine. The stethescope enabled me to discover no abnormal sound in the lungs, except a diffused mucous râle over nearly their whole extent, which, with the cough, I concluded, might be the effect of the spinal irritation. Examination *per vaginam* revealed nothing abnormal in the position or size of the uterus. Adhering to the hand, however, upon withdrawing it, was an offensive, dirty, yellow looking matter, with small, lumpy and shreddy matters intermixed, somewhat resembling feces. The smell, however was altogether different, and I was perfectly satisfied after the examination that no communication existed between the rectum and vagina or uterus. She informed me that some months before, (the exact time not recollected) the uterus commenced enlarging, the catamenia ceased, and she was under the impression that she was pregnant. The uterus continued to increase, until it attained a certain size; then pains, resembling labor pains, came on, and she discharg-

ed a quantity of offensive matter, very much like that which was then passing from her. After this, the matter continued to dribble from her constantly, and she perceived in a short time, that the uterus was again enlarging.—Two weeks from the time of the first discharge, similar pains came on, and a similar discharge from the uterus took place; and this continued to recur every two weeks up to the time I saw her. It was a novel case to me, and without being able to make out the diagnosis to my own satisfaction, I determined to try the virtues of counter-irritants, alteratives and tonics. I directed the spine to be blistered one-half of its length from above downwards and the lower half to be rubbed twice a day with a strong stimulating liniment, and this to be reversed when the blister should heal—blister below and frictions above.—Tartar-emetic pustulations over the chest to be continued until the cough ceased; with an expectorant of lobelia, squills and seneca, to be taken pro re nata. Gave the iod. mer. pill night and morning, and directed her bowels to be moved, when required, with equal parts, by measure, of cremor tartar, magnesia and sulphur. At the same time I directed her to take of the following solution, to wit: ℞ Iod. potassium grs. xx, iodine grs. x, aqua ℥j. Mix. Commencing with 20 drops three times a day, in infusion of sarsaparrilla, and increase gradually to 40 drops—to cleanse the vagina, when necessary, with inf. chamomile. At the expiration of three weeks I learned from her husband that she had greatly improved; the cough having entirely disappeared; no discharge from the vagina, and no appearance of the uterus enlarging. I then directed him to give her mur. tinc. iron in infusion of quassia three times a day, commencing with 10 drops, and increasing to 25 or 30—to be alternated at intervals of five or six days, with the nitric acid lemonade.

Five weeks from the time of my first visit, I called to see her, and was surprised and delighted to find her ap-

parently well, walking about and attending to her domestic duties. She rapidly gained flesh and strength, until her health was perfectly re-established. She informed me some time after, that her catamenia continued to return with perfect regularity; and that the quantity, color, &c., evinced a perfectly healthy condition of that function.

The history of this case, as given by the lady herself, up to the time I first saw her, is incomplete, and may possibly, in part, be incorrect. With regard to the exact periodicity in the efforts of the womb to expel its contents, I have some doubts; but as to the fact of the matters accumulating there, and being expelled in the manner described, I have none whatever. I omitted to mention, in its proper place, that the morbid contents of the uterus had been expelled the day before I first visited her (amounting to more than two quarts), and never afterwards re-accumulated. Was this a case of simple chronic inflammation of the lining membrane of the uterus? producing the, so called, hydrometra? or was it malignant disease of that organ?

In the latter part of May, 1847, I saw, for the first time, Mrs. N., æt. 30, the mother of three children. She had suffered for many months with irregularity in the catamenial efforts, and general derangement of all the functions of the body, producing great emaciation, a long train of hysterical symptoms, &c. Her bowels had been much disordered during the time, and continued to get worse, under the treatment of a "steam doctor," until, finally, a severe form of chronic dysentery was the result. Examination *per vaginam* disclosed prolapsus and a most singularly atrophied condition of the uterus. Indeed, it was impossible for me, with the most careful examination, to detect anything of the organ, except the cervix, which the extremely relaxed condition of the walls of the vagina permitted to be moved in any direction with great facility.

I will not go into the details of the treatment in this case, but content myself with simply submitting the general plan, which was similar to that instituted in the first case, (Mrs. W.) i. e. the same articles were brought into requisition, and varied in their administration according as circumstances seemed to indicate. Proto-iod. mer., hydriodate potas., nitric acid, elix. vitriol, cit. and mur. tinc. iron, were all used—first one and then the other, in the order in which they are mentioned, each one continued as long as the patient seemed to be benefitted by its use; substituting another article and again returning to the one that had been previously given.

This plan may, at first view, be considered empirical, but upon a little reflection, it will be remembered, that it often happens, that while one particular article of the materia medica, will, for a time, act most beneficially, filling the indication admirably; it appears at last to loose its powers, and may be advantageously superseded by another of the same class, and again recurred to at a later period of the disease. At any rate, this plan, in my practice, has answered all my expectations, and I shall continue to pursue it, until I am satisfied of its inutility. It answered an admirable purpose in this instance, making a perfect cure at last, but the time required to accomplish it was much greater than in either of the preceding cases mentioned in this paper. I saw her on the 10th of last January, and learned that she had been delivered, six weeks before, of a healthy child, weighing, at its birth, eleven pounds. Mother and child both doing well at the time I saw them.

In addition to the treatment already mentioned, the bowel affection was attended to in the following manner, to wit: dry cups, stimulating frictions and the flannel roller over the abdomen—internally, a combination of hydr. c. creta, Dover's powder, pulv. g. Arabic and nut galls; and also, occasionally, a pill of opium and sulph. cupri,

ext. hyosciamus and morphia, to allay nervous irritability and procure sleep. Quinine was used late in the treatment, in small doses, (gr. j.) with the happiest effects. A rather distressing pruritus and leucorrhea, which supervened in the course of the disease, yielded quickly to injections of acet. plumbi.

Germantown, Tenn., Aug. 9, 1849.

ART. II.—*Case of Extensive Fracture of the Skull, and Perforation of the Longitudinal Sinus—Operation and Recovery.* By W. C. COLE, M. D., of Detroit, Michigan.

Arad F., æt. 19, resident of Seneca county, Ohio, was struck down early in the morning of the 4th day of February, 1848, by a red-oak limb, four and a half inches in diameter, and twenty feet long, falling horizontally, from a height of fifty feet, hitting him upon the top and back part of the head, transversely, as he was standing erect, having no warning of the coming blow, and breaking from the centre of the limb, a piece six feet long, and extensively fracturing the superior and posterior portions, of the parietal, and the superior portion of the occipital bones.

Drs. Pierce and Sparks were immediately called to the case. They requesting my presence, I was accordingly sent for. On my arrival, towards evening, I found the patient in the following condition: Laying upon his back, and at times somewhat restless; respiration laborious and slow; pulse fifty per minute and heavy; extremities cold; face expressive of pain and anxiety; eyes injected, and pupils largely dilated, yet sluggishly sensible to light; tongue white and blanched; incoherent muttering; could be partially roused, yet could give no answers when questioned; when head was handled, moaned and was restless;

would also throw his hands over his head; great tumefaction of the scalp covering the upper and back part of the head.

He was immediately bled to the extent of twenty ounces, without materially effecting the pulse or respiration. Hot applications were made to the feet, the head ed, and cold applied to it.

I now recommended the operation, as there was, beyond a doubt, extensive depression of the bones of the cranium.

Here a truce was sounded, for family consultation, which became somewhat protracted, in consequence of a discrepancy of opinion between the attending physicians, previous to my arrival. The one, an old practitioner, gave it as his opinion, that there was no fracture or depression of the skull. The other, a young physician, and former pupil of mine, had expressed a contrary opinion. Our dissenting friend, however, soon acquiesced, and the friends of the patient gave their consent, and desired the operation, as the last chance left, to save the life of their brother, (his parents being absent,) and that chance a very doubtful one, from the locality and extent of the injury sustained.

Accordingly, after shaving the hair from all that portion of the scalp, occupied by the tumefaction, the operation was commenced, about sunset, by making a crucial incision of five inches in extent, across the tumor, and raising the flaps, the pericranium was found largely detached from the superior posterior angle of the right parietal bone. The borders of both parietals, forming the posterior third of the sagittal suture fractured and depressed—the right more than the left. The occipital bone was also fractured and depressed along its lambdoidal edge, for three inches, and extending an inch and a half into its substance. The Trephine was first set, with its centre pin just upon the sound edge of the occipital

bone, and a perforation made. It was next applied to the left parietal, which was also perforated. Now connecting the two perforations, with a "Hay's saw," crossing the lambdoidal suture, a large portion of depressed bone was removed, from the line made with the "Hay's saw" to the sagittal suture. This being accomplished, the remaining fractured portion of the occipital was readily removed by the aid of the bone-nippers and forceps.

There was now only left to be elevated, and some pieces removed, of an ugly fracture and depression of the right, together with a small portion of the opposing edge of the left parietal, extending over the longitudinal sinus. To effect this, the trephine was placed on the sound border of the right parietal bone, (it being the part denuded of its pericranium,) but immediately on making pressure, to bring the saw in contact with the bone, a quantity of blood made its exit from the first perforations. When the pressure was removed, the blood ceased to flow, but as soon as reapplied, the flowing recommenced, and continued, so long as pressure was kept up.

The perforation, however, was soon accomplished so nearly, that the piece was broken out with the elevator. This being done, I proceeded to remove and elevate the remaining fractured and depressed portions of bone, composing the sagittal suture from both parietals, and on grasping with the forceps, a small spicula of bone, which was driven inward, a continuous jet of venous blood, proceeding from under the edge of the left parietal, followed its removal. This was imperfectly suppressed by the finger of an assistant, until the remaining loose pieces of bone could be removed and the firm depressions elevated, which being done rather hurriedly, as I confess I now considered the case hopeless, a compress of muslin was folded of sufficient thickness, and laid over the bleeding sinus, so that when the flaps were brought together, it effectually suppressed the hemorrhage which had been so

profuse, during the few moments occupied in closing the operation, that the patient became almost pulseless. After closing the wound, by stitching the corners of the flaps together, and applying suitable bandages, I left the patient for the night, with Dr. Sparks, assuring the friends that he would die.

Dr. Pierce continued to attend the case, until, contrary to my most positive prognosis, he recovered, with every faculty which he had ever possessed; perfect in every respect, except the small handful of bone which I had relieved him of, and still have in my possession.

I regret that the daily minutes of this case were not kept. The wound was dressed in one week from the operation, and the compress removed. Slight spasms occurred occasionally, for some two weeks, until suppuration was fairly established, and as soon as the exfoliation of the external table of the right parietal, which was denuded of its pericranium was completed, healthy granulations sprang up, and the case went kindly on to a most favorable termination.

Remarks.—In reflecting upon this case, it is evident that the patient owed his recovery to the great quantity of blood which escaped from the wounded sinus, thereby holding the reacting powers of nature in check, until the low grade of inflammation which was set up, (as without inflammation no recuperative effect could result) sufficiently agglutinated together the edges of the wound in the sinus, to withstand the force of the circulation, when it became vehement, which was kept somewhat restrained, by cold applications.

Art. III.—*A Case of Lienteric Diarrhea.* By M. H. Fee, M. D., of Hiltonsville, Indiana.

The case was a young man, aged 17 or 18; a hard working and hearty young man, though of a scrofulous

predisposition. His mother, whose physical conformation was the prototype of the son's, died of tubercular phthisis. Every domestic astringent had been exhausted before I was called, but without effect. A physician had been consulted, who had prescribed blue mass, in conjunction with one of the popular nostrums, called "Cholera Mixture," but with no better success.

The physical symptoms were: pulse 125 per minute, small and quick; respiration 26; profuse perspiration; tongue broad, flabby, coated white, tremulous, protruded with difficulty, point and edges of a vivid red, and papillæ enlarged; heart sounds heard at every point of the chest, but normal; respiratory murmur rather puerile, indicating, I think, slight tubercular engorgement; percussion gave a rather dull sound; sleepy expression of countenance; no tenderness of the bowels; about twelve alvine dejections per diem, thin, yellow, with lumps of undigested food; food taken into his stomach was found in half an hour in his stools.

I prescribed twenty-six grains calomel, one and a half grs. opium and three grs. sugar of lead. This held the bowels in check twelve hours. It then moved off, bringing dark bile, but the disease went on afterwards unchanged. I prescribed three grains nit. argent. with sufficient bread crumbs, divided into nine pills, one to be taken every three hours, until all were taken. After which, till my next visit, a pill containing two drops creosote, every three hours.

At my next visit, found him with dry, red, square, clean, pointed tongue. The enlarged papilla had disappeared. Some abdominal tenderness below umbilicus. Bowels much less moved. Applied a large blister over the bowels, and a small one on each ankle; gave one and a half grains opium, ten grains calomel and five grains blue mass; directed to let it lie on the bowels till signs of ptyalism appeared; and ordered slippery elm bark drink.

At my next visit, found the dose prescribed at my last visit had lain twenty-eight hours; slight soreness of gums; tongue clean, moist and natural; bowels acting naturally; appetite good; light food remaining as long as in health; alvine dejections natural; digestion good. He is now well,

My last visit was made the 21st ult.

The disease had been running four weeks when I was called to treat it.

Hiltonsville, Ia., Sept. 5, 1849.

ART. IV.—*Medical Heresies—Anesthesia in Natural Labor, etc.* By Dr. E. B. HASKINS, of Clarksville, Tennessee.

Simultaneous with the birth and maturation of experimental philosophy, has gradually died the spirit of disputation with the cultivators of science. Each laborer in the great field of research is content to spread before the scrutinizing gaze of his fellow-laborers, the result of his own efforts, and abide, with a becoming spirit of confidence, their impartial verdict. Enlightened by the history of the past, as to the insufficiency of argument, to sustain assumed facts and false theories, and embued with a love of truth and consistency, and trusting confidently to the honesty, intelligence, and acumen of the learned, they seldom bring to bear the batteries of *logic* upon the candid and temperate criticisms of their co-laborers.—The original mind is too intent upon the discovery of new facts, and the development of new principles, to waste its time upon a single discovery or invention. Having brought it to light, matured and perfected it, and made it comprehensible to all, it is thrown upon the world to abide its fate. If it be true and valuable, it will win its way to favor; and if it be false, the sooner it is consigned to oblivion the better.

However true this may be as a general remark, we oc-

casionally meet with exceptions. Once in a while, we witness a great mind, in every way deserving the respect and confidence of the learned, when not infatuated by the intoxicating thought of originality; yet when its dogmas are objected to, at once assumes the attitude of the combatant, and defends its favorite theory or hypothesis with the reckless anxiety of a sworn partizan—blinded by the prejudices of authorship, it brings into requisition even the weapons of false and sophistical reasoning.

An example of such a misdirection of learning and talents, may be found, in my humble judgment, in the attempt of Prof. J. Y. Simpson, of Edinburgh, to urge upon the medical profession, by the force of his genius, the adoption of anesthetic agents in *natural labor*.*

In this attempt, the Edinburgh Professor has been driven, by the forcible objections of Prof. Meigs to anesthesia in *natural labor*, to the advancement of certain doctrines, that, I am persuaded, are new to the profession, and never would have been advanced but to sustain the consistency of a practice, with which the Professor has identified much of his medico-literary reputation; and it is the object of this paper briefly to inquire, *directly*, into the truth of these doctrines, and *incidentally*, into the propriety of anesthetic agents in natural labor.

For the sake of convenience, these doctrines may be stated in three propositions, in the order in which they are argued by Prof. Simpson :†

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* This will scarcely be said to be too strong a charge, when his own countryman and eulogist holds the following language about him: "No sooner was his anesthetic system impugned, than Professor Simpson threw himself tooth and nail into the conflict; and his adversaries, after experiencing about as severe punishment as men could stand up and receive, are now beginning to understand their position."—*Eclec. Mag. of For. Lit.* from *Tait's Edinburg Magazine.*

† See Prof. Simpson's Letter to Prof. Meigs, published in the Med. Examiner for April and May, 1849.

Prop. 1*st. That pain is a non-essential element in the process of parturition.*

Prop. 2*d. That the pains of parturition are not physiological, in civilized society.*

Prop. 3*d. That physiological functions may be proper objects of therapeutic interference.*

The argument to sustain the first proposition was as follows: "It [the pain of labor] is non-essential because, first, labor, that is, the uterine contractions, are occasionally, though very rarely in the course of practice, seen to accomplish the full expulsion of the child, with little or no pain. Second, in whole tribes of the human race, as in some of the black tribes, little or no pain seems to be endured, if we may believe various authorities; and third, hundreds of women have, during the last year, been delivered, with perfect safety, but without any pain, while placed under the influence of anesthetic agents."

Here it seems that the Edinburg Professor has strangely overlooked the difference between that which is essential to the mere performance of an act, and that which is essential to its best or complete performance—between that which is not absolutely essential and that which is more than essential, or superfluous. Two eyes are not essential to the mere function of vision, yet that is no reason why one should be plucked out as *non-essential*, or superfluous. Two eyes are essential to complete or perfect vision—just as pain may be affirmed to be not essential to the mere act of parturition, yet essential to perfect parturition. Besides, it may even be true, that pain is not essential to the perfect expulsion of the child, and yet not true that it is a non-essential element in the process of parturition; for the human constitution is a system of organs, intimately connected by functional relationships, many of which, no doubt, being feebly exerted upon distant organs, are wholly unknown to us; and though the pains of labor may seem to serve no essential

end in the perfect expulsion of the child, yet have some other salutary influence not cognizant to our senses.

The laws of organic action are not sufficiently understood, and probably never will be, to justify us in the declaration of any physiological action, that it is non-essential, *simply because we may not perceive its essentiality.* Such a facile disposition of physiological problems will hardly meet with the approbation of the rigid and exact philosophers of the present day. It may not be uninteresting to show, that by the same mode of reasoning as here instituted, to prove the non-essentiality of pain in the process of parturition, the feet can be proven to be non-essential to the "process of progression,"* and therefore may be dispensed with. The argument will run thus: Feet are non-essential elements in the "process of progression, because 1st, the legs are occasionally, though very rarely, in the course of life, seen to accomplish the process of walking with little or no feet. 2d. In whole tribes of the human race, as in the Chinese Empire, *little* or no feet seem to be possessed, if we may believe various authorities; and 3d. Hundreds of persons have been seen performing the act of progression with ease, but without any feet, while placed on crutches, or upon wooden legs.

By the way, the *little* and *no*, in the Professor's argument, are ingeniously tacked together, and are, *by turns*, important and *independent* words in the argument. The "little" is important to the truth of the statement, that "in whole tribes *little* (or no) pain is endured," and the "no" becomes important and necessary to the legitimacy of the conclusion *that therefore pain is non-essential*—why? Because "(little or) *no* pain is endured."

I will here take occasion to deny such a thing as a nat-

* I acknowledge my indebtedness to Prof. Simpson for the illustration

ural delivery without pain. I presume it would scarcely be said by any one, in common parlance, that persons enjoying health, suffered any pain in passing urine and feces —yet in the exactness of scientific language, pain accompanies every voluntary effort to expel the contents of the bladder and rectum. The pain being slight, does not render it *no pain*, nor make it *non-essential* to its office.

It may be argued in direct proof of the essentiality of pain in the process of parturition, that in the second stage of labor, the voluntary contraction of the diaphragmatic and abdominal muscles are also brought into requisition in the expulsion of the fetus; and although it may be granted that the agency of these muscles are mainly referred to the laws of reflected and consentaneous action, yet it will hardly be denied by any midwife, that the act of volition greatly controls and modifies these contractions.

If it should be objected that the pain which excites these voluntary contractions is not the pain of uterine contraction, but that arising from the action of the fetus upon the sensitive vaginal walls, it may be replied, that that does not affect the argument as applied to the doctrine of anesthetic agents, since to annul the uterine pains, will also be to annul the pains of original distension.

Prop. 2. *That the pains of parturition are not physiological, in civilized society.*

The argument is as follows: "Now, for the reason that I have already stated, I entirely doubt if we should look upon the severe sensations of pain endured by our patients as truly 'physiological' for, as I have just stated, they are not essential to the mechanism and completion of the process in the white races of mankind, and they are absent to a great degree in the black. The severity of them could, I think, be easily proved to be the result of civilization, and, as I believe, of that increased size of the infantile head, which results from civilization."

Having already examined the arguments upon the non-essentiality of pain in labor, it remains only to inquire into the soundness of the position that *severity* of the pain necessarily constitutes it *pathological*, instead of *physiological.*

It is somewhat surprising that Prof. Simpson should have overlooked a principle recognized by all physiologists, that the functions of the animal organism may and constantly do undergo augmentations and depressions, without passing beyond the physiological limits; thus, the range of healthy urinary secretion, is, according to M. Rayer, between twenty-one and fifty-seven ounces of urine in the twenty-four hours. Andral estimates the physiological range of fibrine of the blood to be between two and five-tenths and three and five-tenths, and that of the globules between one hundred and ten and one hundred and forty; and so with every other functional product, no doubt, in the human body.

That the pains of labor, as well as of hunger, thirst, and every other physiological sensation, may, and actually do have some limits, beyond which they become pathological, may be granted, and yet it does not follow that the severe pains of natural labor—pains that are severe, *ex necessitate*—are pathological. Of course, the enlightened Accoucheur is the proper judge of the pathological or physiological nature of *each particular case that is committed to his care*, as well as of the *safest and best means of relieving them*, or bringing them within the *physiological limits.*

Again, I presume it would scarcely be doubted by any one, that the various modes of artificial life, consequent upon civilizatiion do augment certain functions and depress others, and at the same time the constitution, from its wonderful power of adaptation to the various conditions and circumstances of life, preserves the healthy balance. To take for granted, as Professor Simpson

seems to have done, that that augmentation or depression of physiological action which is the result of *civilization*, is necessarily pathological, would be to deny a healthy action to almost every organ in the constitution of persons of civilized life. Indeed, the Professor has been unfortunate enough to furnish, in the same sentence, the best refutation of his own position, in admitting that *the increased size of the infantile head is the result of civilization*, for I imagine that he will not contend that the *increased head is a diseased growth*, or the *result of a pathological action*.

But the Professor, with seeming consciousness of the difficulty of sustaining such a proposition, ingeniously waives the further discussion of it, and directs the force of his logical powers to the establishment of

Prop. 3. *That physiological functions may be proper objects of therapeutic interference.*

"But waiving this point, or the discussion of it, let me state that even if I allowed all the intense pain of parturition to be 'physiological pain,' I cannot conceive that to be any adequate reason for our not relieving women from the endurence of them. Because nature has fashioned any particular physiological function in any particular manner, that, I opine, is no reason why the science and art of civilized life should not, when possible, alter and amend its workings. If it were improper for us, for instance, to intermeddle with the functions of the hair of the head, or of the skin generally, then all hats and other coverings for the scalp, all clothing and coverings for the body, should be at once abandoned and unconditionally condemed. If it were improper for us to alter and amend the functions of the eye, then all optical glasses, the telescope, the microscope, &c., must be thrown aside."

To "alter and amend" a physiological function, strikes me as a singularly awkward expression for one of Prof. Simpson's learning. I understand a *physiological function*

to be *the proper or healthy action of an organ*, and to change or alter that action, would be to make it something else than the proper or healthy action—i. e., *an unhealthy, or pathological action.* In other words, *altered physiology is pathology.* An *organ*, by changing its relations and imposing upon it new duties, may be altered, as skin may be converted into mucous membrane, and *vice versa*, and the *function* alters with the *organ;* but that is not altering the *physiologicnl function* of skin, or of mucous membrane; for it is no longer *skin* when changed to *mucous membrane;* nor *mucous membrane* when changed to *skin.*

It is true, the intention of medication is to alter, directly, some physiological action, and make it, for the time, pathological, as, emetics are intended to disturb and alter the physiological action of the stomach; purgatives that of the stomach and bowels; opiates to alter the physiological action of the nervous system; and blister plasters to produce a pathological condition of the skin.

Indeed, it is one of the chief arts of medicine, to poison, or make pathological, certain organs or tissues, with controllable agents, to relieve the poisoned or pathological state of other and more vital organs. It is further true, that in, perhaps, every disease, certain organs assume, for a time, functionally, altered or pathological states, that are not, themselves, primarily affected, and therefore not proper objects of direct medication; but the object and end of which is to relieve some primarily diseased organ or tissue—thus, in certain deranged conditions of the chylopoietic organs, the kidneys will secrete many substances foreign to their healthy function, as sugar, albumen, biliphein, oxalate of lime, cistine, etc. The liver, skin, kidneys, mucous membrane, and indeed all secreting organs, at times, functionally, pass the physiological limits, for certain curative ends.

But, it must be observed, these alterations of *nature*,

and also of medicine, which are but the suggestions and aids of nature, are not made with the same view, that Professor Simpson proposes to "alter and amend" physiological "workings"—*not because nature has fashioned the particular physiological functions in this particular manner*, and that therefore they are at fault in their *physiological* relations; but because the *physiological* "workings" have been by some hurtful agent, *already* "altered," and the physiological harmony disturbed, and these temporary alterations are made to *restore* the physiological "workings" *that nature has fashioned after a particular manner.*

It may now be asked, what *physiological functions* of the hair of the head, skin, and eyes, do hats, clothing for the body, and optical instruments "alter and amend"? If to cover and protect the head and defend the eyes and face from the rays of the sun be the function of the hair here alluded to, and I can imagine no other, then hats do not *alter* that function, as the hair still covers the head in the *same manner;* nor do they *amend* the function, as it covers the head *no better*, by wearing hats; and the same is true of the other examples. The alterations and additions are not made upon the organic powers and forces; but upon things external of them. *Physiological functions* can only spring from *anatomical structures*, and *hats, clothing* and *optical instruments* being no parts of anatomical structures, cannot be said to perform parts in physiological functions—they may aid* and assist the function; but that aid and assistance forms no fraction of the *physiological action.*

But we will pursue his argument further: "You [Prof. Meigs] talk as if supposing that we should not use means to eschew the pain of parturition, because that pain is physiological. When Columbus first discovered your

* Functions are generally *enfeebled*, instead of *improved*, by aids.

mighty American continent a large portion of the inhabitants were unprovided with any kind of dress or covering. 'To most of them,' says Robertson, 'nature had not even suggested any idea of impropriety in being altogether uncovered.' And I do think that men living in such a state could, against the fashion of dressing, use with far greater propriety and consistency than you or I your own argument against anesthetics in labor." *

* * * * "The truth is, all the tendencies of man in a civilized state of society are to imtermeddle with and change, and, as he conceives, improve the action of almost every function in the body. And each such improvement has, at the time of its introduction, been, like the practice of anesthesia, very duly denounced as improper, &c. I might refer to numerous such cases. Let me cite only one example. The human fingers are admirably constructed by our Creator for the function of seizing and lifting objects." * * *

"In the reign of the earlier Stuarts, forks were introduced from the continent to assist our hands in the act or function of seizing and lifting the divided portions of meat, &c., that we wished to eat. But this was a very sad and uncalled for innovation upon the old and established physiological functions of the human fingers; and at the time it was as loudly opposed and descried as the modern employment of anesthetics in aiding the physiological function of human parturition." [That anesthetics *aid* the physiological function of parturition is, virtually, an assumption of the thing in dispute.] *

* * * * "I repeat, all our tendencies and workings in the present state of civilization, are attempts to intermeddle with and change and improve the action of almost every function in the economy. And assuredly, if we use means in regard to the function of parturition, with a view of ameliorating the unnecessary, but, as you call them, 'absolutely indescribable' pains

that attend upon it, we would be doing nothing more than what you and I and all of us are ever doing, in most of the other natural or physiological functions of our bodies. Let me illustrate this last remark by one more example, for, as I have already said, it is only in this way that we can properly judge of the soundness or unsoundness of our views of novel points in theory and practice. You are well aware that the act of parturition has often been familiarly compared, as the late Prof. Hamilton expresses it, 'to the toils of a journey, and, like it, divided into stages. 'The sufferings of the mother (says he) have been in most languages compared to those of travellers.' Now let us, for a moment, consider this natural simile between the function of parturition and the function of progression. You maintain that 'labor is the culminating point of the female somatic forces.' One of the most illustrious Presidents of your great American republic—Thomas Jefferson—makes, in his memoir, a remark of precisely the same import, regarding walking or progression. He describes the act of walking, but not exactly in the same words, as the kind of culminating point of the human somatic forces." Few or none, perhaps, will question the abstract truth of Jefferson's observations on this point. But, because walking or progression is a 'physiological' function, and the practice of it reputed salutary, would this be with you a proper and sufficient reason for never setting aside, or superseding in any way this physiological state, in the same way as you insist, on the same grounds, that the physiological pain of labor should not be set aside or superseded? Because progression is a natural condition, would this be any adequate reason for your medical advisers adopting your own arguments against anesthesia in midwifery, and insisting upon this, that the next time you traveled from your own city of Philadelphia, to the cities of Baltimore or New York, you should walk the distance on foot, in-

stead of travelling it by railway or other conveyance?"

The learned Professor, it will be observed, has argued through these entire extracts as though it were quite a conceded point, that whatever the arts of commercial, social and fashionable life, find useful, convenient, and agreeable, for these ends, are likewise best for the ends of *hygeine* and *medicine*. That the same "intermeddling" with the functions of the constitution practiced by merchants, navigators, artists, and the fashionable, in their respective pursuits, may and ought to be practiced by the medical man in the direct discharge of a professional office. Traveling in steamboats, steamcars, and coaches, promotes the activity and perfection of commercial and social intercourse ergo, traveling in steamboats, steamcars, and coaches, promotes the best interest of the organic constitution. Thus the Professor argues. But he has prepared the reader's mind for this concession, by artfully assuming that the "intermeddling" with the functions of the body *improves* them. "The truth is, the tendencies of man in a civilized state of society are to intermeddle with, and change, and, as he conceives, improve the action of almost every function in the body."

Now we have furnished to us two examples of this *intermeddling with*, and *improvement of*, the functions of the human constitution, and it is presumed that Prof. Simpson has selected the best examples to illustrate his subject.

The examples are, 1st. The use of forks in seizing and lifting the divided portions of meat, &c. 2d. The use of carriages and other vehicles, as improvements upon the function of progression, or walking.

Allowing that seizing and lifting divided portions of meat with the fingers, and walking, be *physiological functions*, it would even then be no slight task to make it appear that these functions are *improved* by the means here specified. In what manner is the function of "seizing

and lifting," by the use of forks, cultivated and improved? Are fingers more dexterous in "seizing and lifting divided portions of meat," &c., now, than before the introduction of forks? In truth, is not the function of the fingers rather superseded? And are not the same interrogations applicable respecting the function of walking? Can any one show, in what way the function of *walking* is improved by *riding* in carriages and steamcars? The *intermeddling* is not disputed; but to make out the *improvement*, we will have to assume (with Prof. Simpson?) that the parts performed by the forks, carriages, etc., constitute parts of *physiological functions*, the monstrous absurdness of which requires no further notice than has already been taken.

The Professor further argues, as though the tacit agreement of the medical profession to the various pursuits of civilized life be an implied acknowledgement of the tendency of those pursuits to the *improvement* of those *functions* of the body impressed by them. In other words, that if certain functions of the body be enfeebled by the arts of civilized life, then the medical profession should advise that they "be at once abandoned and unconditionally condemned." But this by no means follows: *Individuals*, when engaged in the various specific pursuits of life, attend especially to those objects that are to advance and perfect the ends for which they respectively labor. *Human society*, or *mankind collectively*, however, when operating in view of the interest of the whole, require each member to yield so much of the interest of his special pursuit as is necessary to the general good. Special pursuits, when exercised with a due deference to the interests and just ends of other pursuits, and consequently the interest of the whole, give aid and assistance to the progress of society; but when exercised without such a respect for the general welfare, they become retarders, instead of promoters of man's highest destiny. There-

fore, the medical profession cannot be rightfully exercised in opposing the progress of commerce, agriculture, civil government, the arts, and other laudable pursuits simply because these pursuits may weaken some organs of the physical constitution, and engender disease. The medical man, in the lawful and just capacity of his profession, cannot say to society, you should not wear clothing for the body, because it enfeebles the action of the skin; and that you should not wear hats, because they usurp the function of the hair of your head;—that steamboats, steamcars, and carriages, should not be traveled in, because they indulge man in habits that enfeeble the muscular system, &c. I imagine the physician, who presumed upon this professional right, would be answered something after this manner: Sir, the human capacities, moral, mental, and social, are such as to create a great variety of wants, to answer all purposes of his being; and, therefore, he has more interests to secure than that which it is the office of your profession to subserve. To live long, with a vigorous constitution, is, certainly, of the highest importance; but when purchased at the price of every thing that ministers to his moral, mental, and social wants then it ceases to be desired by man. Your ancient and honorable profession, therefore, can serve the world better than to oppose the progress of civilization. If the various modes of artificial life, consequent upon civilization, do generate new sources of disease and death, it is expected of your profession to advance, *pari passu*, with the sister arts and sciences;—to study the etiology and nature of those diseases, that you may direct us, in our pursuits, to the best means of shunning them, and when they do arise, to apply your art to their cure. This would, I imagine, be the answer to the exercise of such an assumed professional prerogative.

In order to present more strikingly the unsoundness of the third proposition, it was my intention to discuss, at

some length, the *therapeutic* and *prophylactic* relations of pain; but my space will only admit of a few general remarks upon that subject; which is, in itself, sufficiently full and interesting for a separate paper.

Pain, as a physical phenomenon, may very properly be considered under two heads—pathological and physiological.

Pathological pain, I understand to be pain that indicates a diseased or pathological state of some organ or tissue, organic or functional; and for the cure of this pathological state, and consequently the relief of the pain, there is no certain infallible remedy, that addresses itself to our instincts, or to our reason; that there is nothing in the nature of the pain, or in the disease causing it, that suggests any certain specific for its relief. In short, between the *disease* and the *cure* there is known no constant legitimate therapeutic relation. However true these remarks may be, as applied to our instinct and our reason, yet they are not strictly so, as applied to the organism; for notwithstanding our incompetency to properly discern and fully appreciate the indications of cure set up by nature, yet that such efforts are made, and often too successfully, no one denies; but the positive and relative value of these efforts are at present but little understood. Indeed, it has only been by a long course of patient observation upon disease, and the natural indications of cure, that the cultivators of medicine have discovered certain remote relations between the cure of disease and the effects of therapeutic agents. But so imperfect is our knowledge of these efforts of nature, and the power and extent of remedial agents, that it is a matter of unquestionable certainty, that the medical man may, and often does, by unwise and untimely *intermeddling* with the healthy efforts of the system, do great harm, when even in the laudable office of treating a *pathological* state.

Physiological pain, on the contrary, is, pain indicating

certain conditions of certain organs—conditions, not diseased, but healthy, yet liable soon to become so, if the physiological demands be not promptly attended to, and the pain thereby relieved. But the remedies for this pain, unlike the remedies for the former, are *specific* in their nature, and *certain* in their effects; they require no labored research, or attentive observation for their discovery, but they are at once suggested to our instincts; they require no therapeutic skill for their application, but only the necessary conditions; and in their effects, they are not therapeutic, but prophylactic.

Hunger, thirst, the sensations that move the powers of volition in the acts of respiration, defecation, and urination, are physiological pains, and simply to mention them is to convince the reader of the truth of what is here stated. Food, water, atmospheric air, the evacuation of the rectum and bladder, are the several specific remedies for the pains here enumerated.

In like manner, the pain of natural labor being physiological, has its own specific remedy—the evacuation of the contents of the gravid uterus. All these pains, however, have their physiological limits, beyond which they become pathological, and require the aid of therapeutics: thus, hunger, and thirst may be morbid, and no degree of ingestion of food, or amount of drink, will relieve the craving appetite, or thirst; the frequent ineffectual desire to pass urine and feces, that accompanies the irritated or inflamed bladder and rectum, are further examples of pain overstepping the physiological bounds. So the pain of parturition may, also, in degree or duration, or both, become pathological, and require treatment; but as already observed, of this, the accoucheur is the only proper judge in each particular case; but in *no case*, let it be borne in mind, is *therapeutical* assistance demanded whilst the pain is simply *physiological*.

July, 1849.

ART. V.—*Wound of the Brain—recovery.* By WILLIAM KENNEY, M. D., of Millersburg, Kentucky.

Isaac Dubler, aged about seventeen, received, in an affray on the night of the 25th July, a stab with a common pocket knife, blade two inches and a half in length and three quarters of an inch in width, tapering abruptly on back and edge to a point. The wound was in the left temporal region. The knife was driven with such force as to penetrate the brain the full length of the blade, at a point midway and about three quarters of an inch above a line drawn from the external angle of the eye to the *meatus auditorius internus.* The handle of the knife as it stood looked slightly forwards and upwards, and was so firmly fixed between the divided bone that it was with great difficulty that the knife was removed. During its presence in the brain, and after its removal, the patient complained of great pain in the left eye and over the frontal region of that side. Its removal was followed by hemorrhage, to the amount of ten or twelve ounces, vomiting and stupor. The patient was taken from the street, his wound washed, and without farther dressings being applied, was placed in bed, with the head raised, and ordered the free use of cold applications to scalp; sinapisms to the extremities; xx. grs. calomel; rest and quiet.

26th. Patient somewhat restless during the night. Pain, drowsiness and vomiting persisted. Pulse 84, and slightly increased in force; face flushed; extremities warm; some intolerance of light, and slight conjunctival discoloration; urine scanty; tongue coated; parts around the wound swollen. No action on bowels.

Ordered an enema. The room to be darkened.—Light diet. A repetition of the calomel at night; continue cold application to the shaven scalp; sinapisms to the extremities.

27th. Patient restless; pulse 92; tongue red at edges and tip; some heat, and complains of pain of the head; intolerance of light and noise; continues drowsy with a sense of numbness of the entire left half of the body, but less disposition to vomit. Slight abdominal tenderness.

Ordered an enema. Blue mass and pulv. Dov. ää grs. v. at night; fomentations to the abdomen; iced mucilaginous drinks; sinapisms, cold applications, etc., continued.

28th. Pulse 84; rested well; less pain of head and intolerance of light; tongue less red; abdominal tenderness diminished; drowsiness subsiding; wound less swollen, healthy and closing; numbness confined to the left half of the face; talks cheerfully; keeps awake, and wants to sit up; appetite increasing.

Prescriptions continued.

29th. Pulse 74; slept well during the night; skin moist; sits up; free from pain or uneasiness; feels weak; appetite good; wound closed, and patient says he is well.

31st. Patient still improving; walks about the room; feels vertigo occasionally, and still has the numb sensation of the left half of the face.

August 5th. Walking about town. Bowels regular; appetite good.

14. Discharged.

ART. VI.—*Treatment of Bloody Tumors by the Actual Cautery.* Translated from the Gazette des Hôpitaux, by DAVID W. YANDELL, M. D., of Louisville, Ky.

The treatment of these venous sanguine tumors, which are so frequently found in children and so rarely in adults, is far from having attained the highest degree of perfection. The two methods most commonly employed—ablation and ligature—are, as is well known, both open to very serious objections.

Ablation, the method generally in use in Germany, besides exposing to dangerous hemorrhages, is inevitably followed by a loss of substance, more or less great, according to the volume of the tumor, and leaves an indelible cicatrix. In certain localities, it is true, this inconvenience may be very insignificant; but in others again it may be sufficient to render this method entirely impracticable. An example in point is furnished by the first case which will presently be reported. In this instance, the tumor occupied the superior eyelid; in order to remove it it would have been necessary to sacrifice the greater part of the skin of this lid, which would have invited and almost certainly been followed by a considerable ectropion, that would have been not only a deformity but a very serious infirmity.

This method exposes also to phlebitis, to the development of which the peculiar tissue of which these tumors are composed, naturally predisposes.

The ligature does not expose less than ablation to this latter accident; it exposes also to hemorrhage; is slow and uncertain in its action; and, finally, it also produces the loss of a certain amount of substance.

The use of needles and setons in the treatment of these tumors is attended by all the inconveniences save the loss of substance, of either of the preceding methods and is much more uncertain in its results.

M. Lenoir of the Necker Hospital, of Paris, believes that he has found in the actual cautery a means free from these objections. Cauterization with the red hot iron possesses the property of coagulating the blood in the vessels, and in this way prevents hemorrhage. The labors of M. Bonnet, of Lyons, have proved that it exposes less than any other to phlebitis, and finally the hope was entertained that by it we might obtain the diminution and obliteration of the tumor without producing any loss of substance.

Dr. Lenoir soon had an opportunity of demonstrating the truth of these opinions. In 1844 or 1845, he brought before the Parisian Surgical Society a child affected with a bloody tumor of the size of a pullet's egg, situated in the parotid region. The tumor was traversed from one side to the other in three or four different places by a platina needle heated to a white heat. Shortly after it had diminished full three-quarters in size. Unfortunately about this time the child was lost sight of, and it was never satisfactorily ascertained whether the cure was radical or not.

Relative to this subject, Auguste Berard, who was then president of the society, and who died not very long after, a loss to science and the world, remarked that the thought of the same operation had also occurred to him, and that he had practised it with success.

Subsequently M. Lenoir, treated in like manner in a child at the breast a similar tumor situated on the forearm. In this case, the inflammation produced by the cauterization passed the desired limits; gangrene attacked a portion of the tumor, but the little patient eventually recovered without other accident.

Two other opportunities for repeating the operation having been recently afforded Dr. Lenoir, a brief transcript of them as published in the *Gazette des Hôpitaux* may not be unacceptable to the profession.

Case I. A round, well developed, healthy child, of thirteen months, has had, since it was five weeks old, a tumor seated on the right eyelid. The tumor, about the size of a chesnut, of a bluish tinge, was encircled by veins which, as the tumor, dilated when the infant cried; situated on the superior lid, towards the great angle of the eye, it embarrassed the movements of this lid and prevented its elevation.

A flat needle of platina, heated to a white heat, was repeatedly introduced into the tumor, which in consequence

of the operation became inflamed, suppurated and then gradually diminished in volume. After the cauterization, simple compresses dipped in cold water were applied to the eye during twenty-four hours; these were afterwards succeeded by cataplasms. The child for some days had a slight fever and ate nothing.

The tumor was touched three times with the nitrate of silver. At the end of a month the child was cheerful and did not appear to suffer in the least. The tumor had lessened very perceptibly in size and the eye could be partially opened; otherwise healthy.

The tumor continued to decrease in volume, and in the course of another month there remained only a faint brown discoloration of the skin at the seat of the tumor, and a very slight deformity; the crease of the superior eyelid is less distinct towards the internal angle of the eye; and this opens less perfectly than that of the eye of the opposite side; this slight difference between the two eyes in a short time became still less, and manifestly tended to disappear entirely. The general health of the child was very good. It was dismissed from the hospital, cured.

The following remark concerning the above case is made, we think with much truth by the editor of the *Gazette des Hôpitaux:* Not only would no other method than the actual cautery have been followed by such satisfactory results, but it is even very doubtful whether one would have been willing to hazard the use of these methods in the region where the tumor was located.

Case II. A child, æt. 11 months, had, since the age of five months, a tumor of the size of a large nut, situated on the inferior part of the sternum. The tumor offered the character noted in the preceding; violet hue increasing in intensity during cries of the child; volume augmenting from same cause.

The needle heated to a white heat was introduced a

single time; simple dressings; moderate suppuration was established. Gentle compression was now used, and the tumor gradually diminished in volume and finally completely disappeared, leaving only a slight reddish spot to mark its existence.

It will be remarked in this case, Dr. Lenoir practised cauterization only once, in order to avoid producing too high a degree of inflammation and consecutive gangrene. He will hereafter adopt this course, which in many respects is preferable to the other—repeated cauterization—since it is a very easy matter, if a single cauterization prove inefficient to repeat it a second, and if necessary at a later period, a third time. This procedure, it is true, will protract the recovery, but the loss of time is more than counterbalanced by the chances of loss of substance being thereby greatly diminished, which is of the greatest importance, especially in cases, where for example, the tumor is situated on the eyelids.

REVIEWS.

Art. VI.—*Manual of Physiology.* By W. Senhouse Kirkes, M. D. Assisted by James Paget, Lecturer on General Anatomy and Physiology, at St. Bartholomew's Hospital, with 118 illustrations on wood. Philadelphia: Lea & Blanchard. 12mo. pp. 548. 1849.

We remember once to have heard an eminent medical professor discoursing to a popular audience on the circulation of the blood, and at the close of his lecture his hearers must have been sadly puzzled to determine by what power it is that the vital fluid is kept in motion. It could not be the heart, for the learned professor assured them that that organ was sometimes found "ossified," and yet the blood continued to move. It could not be the arteries, for no contraction was observed to take place in them. What, then, could it be? This was a problem which was left unsolved by the veteran lecturer. Our authors do not appear to have found it so embarrassing, nor will the reader be at a loss to account for the circulation, after a careful perusal of their chapter on the subject. In the muscular substance of the heart, they rationally find the principal force for moving the blood; and, as assistant forces, they mention the elastic walls of the arteries, the pressure of the muscles among which some of the veins run, and the movements of the walls of the chest in respiration. If the heart is not designed

mainly for the propulsion of the blood, what, we fancy the reader is ready to inquire, is its office in the animal economy? And yet it is not probable that it maintains the motion of the blood in its entire course, for the capillaries are capable of accelerating or arresting it.—"That the movement of the blood through the arterial trunks and the capillary tubes is, in man, and in other warm-blooded animals, chiefly dependent upon the action of the heart, there can be no doubt whatever," says Carpenter. But, as remarks this writer, "certain residual phenomena indicate that this is not the whole truth, even in man." A circulation is maintained in plants and in the lower animals, independently of a heart. In cold-blooded animals, the complete excision of the heart does not put a stop to the movement of the blood in the capillaries; and cases are on record, in which the functions have gone on healthily in the human fetus during the whole of embryonic life, the heart being absent. "A single case of this kind," observes Dr. Carpenter," furnishes all the proof that can be needed, of the existence, even in the highest animals, of a capillary power; which, though usually subordinate to the heart's action, is sufficiently strong to maintain the circulation by itself, when the power of the central organ is diminished."

What is this power of the capillaries? It is not mechanical, for these vessels, when examined microscopically, present no obvious movement, and the stream of blood "rendered continuous by the elasticity of the arteries, passes through them as through unelastic tubes." It is chemical, and has been well illustrated by Prof. Draper, in his work on the Food of Plants. If, he says, two liquids communicate with each other through a capillary tube, for the walls of which they both have an affinity, and if this affinity is stronger in the one liquid than in the other, a movement will ensue; the liquid which has the greatest affinity being absorbed most energetically into

the tube, and driving the other before it. The same result occurs when the fluid is drawn, not into a single tube, but into a network of tubes, permeating a solid structure —for if this porous structure be previously saturated with the fluid, for which it has the less degree of attraction, this will be driven out, and replaced by that for which it has the greater affinity, when the latter is permitted to enter it. Now if, in its passage through the porous solid, the liquid undergo such a change, that its affinity be diminished, it is obvious that, according to the principle just explained, it must be driven out by a fresh supply of the original liquid; and that thus a continual movement in the same direction would be produced.

This, he continues, is probably what seems to take place in the organized tissue, permeated by nutritious fluid. This fluid and the solid matter through which it is distributed, have a certain affinity, which is exercised in the nutritive changes to which the fluid becomes subservient during the course of its circulation. And Dr. Carpenter applies this principle, thus, to the circulation in the capillaries:

The arterial blood,—containing oxygen with which it is ready to part, and being prepared to receive in exchange the carbonic acid which the tissues set free,—must obviously have a greater affinity for the tissues, than venous blood; in which both these changes have already been effected. Consequently, upon mere physical principles, the arterial blood which enters the systemic capillaries on one side, must drive before it, and expel on the other side of the net-work, the blood which has become venous whilst traversing it. But if the blood which enters the capillaries have no such affinity, no such motor power can be developed.

On the other hand, in the capillaries of the lungs the opposite affinities prevail. The venous blood and the air in the pulmonary cells have a mutual attraction, which is satisfied by the exchange of oxygen and carbonic acid that takes place through the walls of the capillaries; and

when the blood has become arterialized, it no longer has any attraction for the air. Upon the very same principle, therefore, the venous blood will drive the arterial before it, in the pulmonary capillaries, whilst respiration is properly going on: but if the supply of oxygen be interrupted, so that the blood is no longer aerated, no change in the affinities takes place whilst it traverses the capillary network; the blood continuing venous still retains its need of a change, and its attraction for the walls of the capillaries; and so its egress into the pulmonary veins is thus resisted, rather than aided, by the force generated in the lungs.

The change in the condition of the blood, in regard to the relative proportions of its oxygen and carbonic acid, is the only one to which the pulmonary circulation is subservient; but in the systemic circulation, the changes are of a much more complex nature;—every distinct organ attracting to itself the peculiar substances which it requires as the materials of its own nutrition; and the nature of the affinities thus generated being consequently different in each case. But the same law holds good in all instances. Thus the blood conveyed to the liver by the portal vein, contains the materials at the expense of which the bile-secreting cells are developed; consequently the tissue of the liver, which is principally made up of these cells, possesses a certain degree of affinity or attraction for blood containing these materials; and this is diminished, so soon as they have been drawn from it into the cells around. Consequently the blood of the portal vein will drive before it, into the hepatic vein, the blood which has traversed the capillaries of the portal system, and which has given up, in doing so, the elements of bile to the solid tissues of the liver. The same principle holds good in every other case.

This "assistant force," we think it is clear, must be added to the motive powers of the circulation enumerated by our authors. In the lower animals, it may be, and probably is, the "principal" force; and in man and the higher orders, "whilst the injection of blood *into* the capillary vessels of every part of the system is due to the action of the heart, its rate of passage *through* those ves-

sels is greatly modified by the degree of activity in the processes, to which it should normally be subservient in them; the current being rendered more rapid by an increase in their activity, and being stagnated by their depression or total cessation." Thus it appears that "the capillaries possess a *distributive* power over the blood, regulating the local circulation, independently of the central organ, in obedience to the necessities of each part"—a power beautifully explained by the principle of Prof. Draper just alluded to.

In regard to the rythmic movements of the heart, Dr. Kirkes justly holds that the cause must reside in the organ itself, and independent of the stimulus of the blood. These movements persist after the removal of the heart from the body. From the experiments of Remak, Volkmann and Dr. Robert Lee, he thinks it probable that the cause of this action is "connected with the existence of numerous minute ganglia of the sympathetic nervous system, which, with connecting nerve-fibres, are distributed through the substance of the heart." He continues—

These ganglia appear to act as so many centres or organs for the production of motor impulse; while the connecting nerve-fibres unite them into one system, and enable them to act in concert and direct their impulses so as to excite in regular series the successive contractions of the several muscles of the heart. The mode in which ganglia thus act as centres and co-ordinators of nervous power will be described in the chapter on the Nervous System; and it will appear probable that the chief peculiarity of the heart, in this regard, is due to the number of its ganglia, and the apparently equal power which they all exercise; so that there is no one part of the heart whose action, more than another's, determines the actions of the rest. Thus, if the heart of a reptile be bisected, the rythmic successive actions of auricle and ventricle will go on in both halves; we therefore cannot say that the action of the right side determines or regulates that of the left, or vice versa; and we must suppose that when they act

together in the perfect heart, it is because they are both, as it were, set to the same time. Neither can we say that the auricles determine the action of the ventricles; for, if they are separated, they will both contract and dilate in regular, though not necessarily similar, succession. A fact pointed out by Mr. Malden shows how the several portions of each cavity are similarly adjusted to act alike, yet independently of each other. If a point of the surface of the ventricle of a turtle's or frog's heart be irritated, it will immediately contract, and very quickly afterwards all the rest of the ventricle will contract; but, in the close of this general contraction, the part that was irritated and contracted first, is slightly distended or pouched out, showing that it was adjusted to contract in and for only a certain time, and that therefore as it began to contract first, so it first began to dilate.

The influence of other organs upon the heart, our authors explain, not by "sympathy," but upon the principle of nervous connection—chiefly the sympathetic and pneumogastric nerves; and this influence, they properly maintain, is proved in a much more striking manner by the phenomena of disease, than by any experimental or physiological observations.

The influence of a shock in arresting or modifying the action of the heart,—its very slow action after compression of the brain, or injury to the cervical portion of the spinal cord,—its irregularities and palpitations in dyspepsia and hysteria,—are better evidences for the connection of the heart with the other organs, through the nervous system, than any results obtained by experiments. The best of such results are recorded by E. H. Weber (xv. Art. *Muskelbewegung*), who found that the electro-magnetic stimulus applied in the frog to the *bulbus arteriosus*, around which the principal fibres of the sympathetic nerves supplying the heart are placed, accelerated and strengthened the heart's action; but, applied to the pulsating part of the vena cava inferior, where are the principal filaments it derives from the pneumogastric nerves, retarded the action. He is disposed, therefore, to think

that, in general, stimuli conveyed through the sympathetic nerve would accelerate, and through the pneumogastric would retard, the heart's action. The latter conclusion is corroborated by the fact, also stated by him, that the heart's action is retarded by stimulus applied to any part between the corpora quadrigemina and posterior part of the fourth ventricle of the brain, or to both trunks of the pneumogastric nerves at once, or by division of both pneumogastric nerves in the necks of Mammalia.

One great advantage of the elasticity of the arteries is that it produces an equable movement of the blood—the force with which they are dilated every time the ventricles contract, being "received by them in store to be all given out again in the next succeeding period of dilatation of the ventricles;" so that in the capillaries and veins the intermittent accelerations produced in the arterial current, by the action of the heart, cease to be observable. Other purposes served by the elasticity of the arteries, are the increased capacity which they thus acquire for receiving more than the average quantity of blood under particular circumstances, and their ability to adapt themselves to the different movements of the several parts of the body.

The *muscularity* of arteries has been disputed by some physiologists of late, which leads our authors to go at length into the evidence for it, which we quote:

When a small artery in the living subject is exposed to the air or cold, it gradually but manifestly contracts.—Hunter (i. vol. iii. p. 157) observed that the posterior tibial artery of a dog when laid bare became in a short time so much contracted as almost to prevent the transmission of blood; and the observation has been often and variously confirmed. Simple elasticity could not effect this; for after death, when the vital muscular power has ceased, and the mechanical elastic one alone operates, the contracted artery dilates again.

When an artery is cut across its divided ends contract,

and the orifices may be completely closed. The rapidity and completeness of this contraction are different in different animals; they are generally greater in young than in old animals; and less, apparently, in man than in animals. The contraction is generally increased by the application of cold, or of any simple stimulating substances, or by mechanically irritating the cut ends of the artery, as by pricking or twisting them. Such irritation would not be followed by these effects if the arteries had no other power of contracting than that depending upon elasticity.

The contractile property of arteries continues many hours after death, and thus affords an opportunity of distinguishing it from elasticity. When a portion of an artery, for example, the splenic artery, of a recently killed animal, is exposed, it gradually contracts, and its canal may be thus completely closed: in this contracted state it remains for a time, varying from a few hours to two days —then it dilates again, and permanently retains the same size. If, while contracted, the artery be forcibly distended, its contractility is destroyed, and it holds a middle or natural size.

This persistence of the contractile property after death was well shown in an observation of Hunter, which may be mentioned as proving also the greater degree of contractility possessed by the smaller than the larger arteries. Having injected the uterus of a cow, which had been removed from the animal upwards of twenty-four hours, he found, after the lapse of another day, that the larger vessels had become much more turgid than when he injected them, and that the smaller arteries had contracted so as to force the injection back into the larger ones.

The results of an experiment which Hunter made with the vessels of an umbilical cord, proves still more strikingly, the long continuance of the contractile power of arteries after death. In a woman delivered on a Thursday afternoon, the umbilical cord was separated from the fetus, having been first tied in two places, and then cut between, so that the blood contained in the cord and placenta was confined in them. On the following morning Hunter tied a string round the cord, about an inch below the other ligature, that the blood might still be confined

in the placenta and remaining cord. Having cut off this piece, and allowed all the blood to escape from its vessels, he attentively observed to what size the ends of the cut arteries were brought by the elasticity of their coats, and then laid aside the piece of cord to see the influence of the contractile power of its vessels. On Saturday morning, the day after, the mouths of the arteries were completely closed up. He repeated the experiment the same day with another portion of the same cord, and on the following morning found the results to be precisely similar. On the Sunday, he performed the experiment the third time, but the artery seemed then to have lost its contractility, for, on the Monday morning, the mouths of the cut arteries were found open. In each of these experiments there was but little alteration perceived in the orifices of the veins (i. vol. iii. p. 158).

The influence of cold in increasing the contraction of a divided artery has been referred to: it has been shown, also, by Schwann, in an experiment on the mesentery of a living toad. Having extended the mesentery under the microscope, he placed upon it a few drops of water, the temperature of which was some degrees lower than that of the atmosphere. The contraction of the vessels soon commenced, and gradually increased until, at the expiration of ten or fifteen minutes, the diameter of the canal of an artery, which at first was 0.0724 of an English line, was reduced to 0.0276. The arteries then dilated again, and at the expiration of half an hour had acquired nearly their original size. By renewing the application of the water, the contraction was reproduced: in this way the experiment could be performed several times on the same artery. The veins did not contract. It is thus proved that cold will excite contraction in the walls of very small as well as of comparatively large arteries: it could not produce such contraction in a merely elastic substance; but it is a stimulus to the organic muscular fibres in many other parts, as well as in the arterial coats; as, e. g. in the walls of the bronchi, and the dartos.

Lastly, satisfactory evidence of the muscularity of the arterial coats is furnished by the experiments of Ed. and E. H. Weber (lxxx. 1847, p. 232), in which they applied the stimulus of electro-magnetism to small arteries. One principal circumstance which induced Müller to deny the

muscularity of arteries, was the seeming impossibility of producing contractions in arteries by galvanic and electric stimuli, which excite all true muscular tissues to manifest contraction. An explanation of the failure may be found in the circumstance that, in nearly all the experiments, the arteries examined were of large size, such as the aorta and the carotids, in which there is little or no muscular tissue. The experiments of the Webers were performed on the small mesenteric arteries of frogs; and the most striking and satisfactory results were obtained, when the diameter of the vessels examined did not exceed from one-seventh to one-seventeenth of a Paris line. When a vessel of this size was exposed to the electric current, its diameter, in from five to ten seconds, became one-third less, and the area of its section about one-half. On continuing the stimulus, the narrowing gradually increased, until the calibre of the tube became from three to six times smaller than it was at first, so that only a single row of blood corpuscles could pass along it at once; and eventually the vessel was closed and the current of blood arrested.

Thus, with the exception of the largest trunks, the arteries appear to offer every necessary evidence of muscularity. One of their coats has the structure and chemical composition of organic muscle; and, like such muscle they contract on exposure, on division and mechanical irritation, after death with a kind of *rigor mortis*, on the application of cold, and under the stimulus of electricity: in all these contractions they are reduced to a size less than that which their mere elasticity would give them, and from all they are commonly, after a time, again by their elasticity restored to a larger size.

The purposes served by the muscular coat of the arteries are two-fold;—it assists in propeling the onward current of blood; and first limits and then arrests its flow when an artery is divided.

The most probable office of the muscular coat is that of regulating the quantity of blood to be received by each part, and of adjusting it to the requirements of each according to various circumstances; but, chiefly and most

naturally, according to the activity with which the functions of each part are at different times performed. The amount of function discharged by each organ of the body varies at different times, and the variations often quickly succeed each other, so that, like the brain, for example, during sleep and waking, within the same hour, a part may be now very active and then inactive. In all its active exercise of function, such a part requires a larger supply of blood than is sufficient for it during the times when it is comparatively inactive. It is evident that the heart cannot regulate the supply to each part at different periods, neither could it be regulated by any general and uniform contraction of the arteries; but it may be regulated by the power which the arteries of each part have, in their muscular coat, of contracting so as to diminish, and of dilating to increase, the supply of blood according to the need. And thus, while the ventricles of the heart determine the total quantity of blood to be sent onwards at each contraction, and the force of its propulsion, and while the large and merely elastic arteries distribute it and equalize its stream, the smaller arteries with muscular coats add to these two purposes, that of regulating and determining the proportion of the whole quantity of blood which shall be distributed to each part.

On the nature and function of the capillaries, our authors remark—

Microscopic observations and minute injections have shown that the capillary vessels are merely the fine tubes which form the medium of transition from arteries to veins, and that no other kind of vessel arises from them; that the minute arteries have no other mode of termination than the communication with the veins by means of the capillaries; in a word, that there are no exhalant or other vessels terminating by open extremities. The hypothesis of the existence of such vessels is alike unnecessary to the explanation of secretion, growth, nutrition, and all the other functions of a part. All that these functions require of the vessels is, that, for each tissue, the blood should be brought so near to the active elements of the tissue, that some of its fluid part may be absorbed or

imbibed by them. And the distance through which such imbibition is effected is not always small; in the brain, for example, those portions of its substance which lie in the middle of the wide meshes of the capillary network must be nourished by imbibing fluid through the spaces between them and the nearest vessels; so also in bone, where the vessels are yet wider apart. But the instances in which such imbibition is effected through the greatest distance are in what are called non-vascular tissues, which receive no bloodvessels into their own substance, and are nourished by the fluid absorbed from the vessels of the adjacent vascular parts; as the cornea from the vessels of the conjunctiva, the lens from those of the posterior layer of its capsule, articular cartilage from the vessels of the subjacent bone. The difference of nutrition in vascular and non-vascular tissues is only one of degree; in all parts alike the elementary structures are outside the vessels, and obtain new materials from the blood by imbibition; but the imbibition has to be accomplished through a greater distance in the less than in the more vascular parts.

The rate of the circulation has occupied the attention of physiologists, at different times, and seems to have been accurately determined by some recent experiments. The velocity of the blood's movement, as Müller has justly observed, is not to be judged of by the rapidity with which it flows from a vessel when divded. The rate, in this case, is the result of the entire pressure to which the whole mass of blood is subjected in the vascular system, and which meets with no resistance at the point of the incision; whilst in the closed vessels no portion of blood can be moved forwards but by the propulsion of the whole mass, and by overcoming the resistance growing out of the friction in the smaller vessels. Experiments to ascertain the rapidity with which poisons introduced into the blood are transmitted from one part of the vascular system to another, have afforded data for a very satisfactory estimation of the velocity of the blood in its motion through the body.

From eighteen such experiments on horses, Hering deduced that the time required for the passage of a solution of ferrocyanide of potassium, mixed with the blood, from one jugular vein (through the right side of the heart, the pulmonary circulation, the left cavities of the heart, and the general circulation) to the jugular vein of the opposite side, varies from twenty to thirty seconds. The same substance was transmitted from the jugular vein to the great saphena in twenty seconds; from the jugular vein to the masseteric artery in between fifteen and thirty seconds, to the facial artery in one experiment in between ten and fifteen seconds, in another experiment in between twenty and twenty-five seconds: in its transit from the jugular vein to the metatarsal artery it occupied between twenty and thirty seconds, and in one instance more than forty seconds. The result was nearly the same whatever was the rate of the heart's action.

Poiseuille's observations (xxxi. 1843) accord completely with the above; and show, moreover, that when the ferrocyanide is injected into the blood with other substance, such as acetate of ammonia, or nitrate of potash, (solutions of which, as other experiments have shown, pass quickly through capillary tubes) the passage from one jugular vein to the other is effected in from eighteen to twenty-four seconds; while if, instead of these, alcohol is added, the passage is not completed until from forty to forty-five seconds after injection. Still greater rapidity of transit has been observed by Mr. J. Blake (xciv. Oct., 1841), who found that nitrate of baryta injected into the jugular vein of a horse could be detected in blood drawn from the carotid artery of the opposite side in from fifteen to twenty seconds after the injection. In sixteen seconds a solution of nitrate of potash, injected into the jugular vein of a horse, caused complete arrest of the heart's action, by entering and diffusing itself through the coronary arteries. In a dog, the poisonous effects of strychnia on the nervous system were manifested in twelve seconds after injection into the jugular vein; in a fowl, in six and a half seconds, and in a rabbit in four and a half seconds.

In all these experiments, it is assumed that the substance injected moves with the blood, and at the same rate as it, and does not move from one part of the organs

of circulation to another by diffusing itself through the blood or tissues more quickly than the blood moves. The assumption is so probable that it may be considered nearly certain that the times above mentioned, as occupied in the passage of the injected substances, are those in which the portion of blood into which each was injected was carried from one part to another of the vascular system. It would, therefore, appear that a portion of blood can traverse the entire course of the circulation, in the horse, in half a minute; of course it would require longer to traverse the vessels of the most distant part of the extremities than to go through those of the neck; but taking an average length of vessels to be traversed, and assuming, as we may, that the movement of blood in the human subject is not slower than in the horse, it may be concluded that one minute, which is the estimate usually adopted of the average time in which the blood completes its entire circuit in man, is rather above than below the actual rate.

The next topic discussed by our authors is, the "*peculiarities of the circulation in different parts*," the most remarkable of which are presented by the lungs, the liver, the brain and the erectile organs. Whether the brain contains at one time more blood than at another, is a question, the reader needs not to be informed, which has divided the ablest physiologists and pathologists of the day. The functions of the brain require that it should receive a large supply of blood. It is also necessary that the force with which the blood is sent to the brain should be subject to less variation from external circumstances than it is in other parts. Uniformity in the supply of blood is a third condition indispensabble to the integrity of its functions, and required by the character of the matter of which it is composed.

The experiments of Dr. Kellie appeared to establish the position that the quantity of blood in the brain must be at all times the same; and that the quantity received, in a given time by the arteries, must be always, and at

the same time, exactly equal to that removed by the veins. According to his observation, in animals bled to death, while all the other organs of the body were nearly emptied of blood, the vessels of the brain contained almost their ordinary quantity; but he found that if, previous to bleeding an animal, he made a hole in its cranium, thus exposing the brain equally with the other organs to the influence of atmospheric pressure, its vessels. like those of other parts of the body, were emptied as the fatal hemorrhage proceeded.

But Dr. Burrows, as we showed, in a former number, having repeated these experiments, and performed others in addition, has obtained different results. He found that in animals bled to death the brain became pale and anemic without the aid of an aperture in the cranium. He also found evidences of congestion of the cerebral vessels, in rabbits, killed by strangling or drowning; and from all his experiments he concluded,

That although the total volume of the contents of the cranium is probably nearly always the same, yet the quantity of blood in it is liable to variation, its increase or diminution being accompanied by a simultaneous diminution or increase in the quantity of the cerebro-spinal fluid, which, by readily admitting of being removed from one part of the brain and spinal cord to another, and of being rapidly absorbed, and as readily effused, would serve as a kind of supplemental fluid to the other contents of the cranium, to keep it uniformly filled in case of variations in their quantity (see also Ecker, cxxix). But such variations occur only in abnormal conditions; in ordinary states, and in health, it is probable that the arrangements of the vessels, to which we have referred, insure to the brain a supply of blood which is both uniform and guarded from the accidental disturbances to which the supply for all other organs is liable even in circumstances consistent with health.

Respiration is the next subject considered, and is taken

up here rather than among the excretory functions, because of its intimate relation to the circulation. The blood, as it circulates through the various parts of the body, not only loses a part of its nutritive properties, but becomes charged with impurities, resultiug from the disintegration of the tissues. One of the most abundant of these is carbonic acid, the removal of which, and the introduction of fresh supplies of oxygen, are the great ends of respiration, of which a very full and satisfactory account is given by our authors.

The quantity of air changed in the lungs in each act of ordinary breathing varies according to circumstances and in different individuals, but is correctly enough stated by Coathupe at from twenty to twenty-five cubic inches. In old people, according to Bourgery, breathing is deeper, and the quantity of air changed in each respiration greater. Hutchison calls the air habitually changed in breathing, *breathing air ;* that which remains after ordinary expiration, he calls *reserve air;* and he names that *supplemental air*, which a man can draw into the lungs in the deepest inspiration. But after the most violent expiratory efforts a certain quantity of air always remains in the lungs, which our athors propose to call *residual air.* The respiratory capacity of the chest, indicated by the quantity of air which a person can expel from the lungs by a forcible expiration after the deepest breathing, is termed by Hutchison the *vital capacity*, and expresses the power which the individual possesses in the emergencies of active exercise, violence, and disease. This capacity varies with the age, stature, and weight of individuals. For a man five feet seven inches high, at sixty degrees Fahrenheit, according to this author, it is two hundred and twenty five cubic inches. For every inch above this standard, we learn from the same writer, the capacity is increased, on an average, by eight cubic inches; and for every inch below, it is diminished by the same amount. It is singu-

lar that this relation of capacity to height should be "quite independent of the absolute capacity of the cavity of the chest," so that a person of small absolute capacity of chest may have a large capacity of respiration, and the reverse. The capacity of respiration depends upon "the mobility of the walls of the chest"; but why this mobility should increase in a definite ratio with the height of the body, as remarked by our authors, is yet unexplained; and is the more difficult of solution, as the height of the body is determined more by the length of the legs than by that of the trunk.

The lungs have been shown, by modern anatomists, to possess "organic-muscular circular fibres," in the larger branches of the bronchial tubes, from which they derive "some power of spontaneous contraction." In ordinary breathing these fibres do not appear to be put in requisition, nor indeed is it known under what circumstances they are brought into action. Their office, our authors believe, "is to regulate and adapt, in some measure, the quantity of air admitted to the lungs, and to each part of them, according to the supply of blood." This muscular action, morbidly excited, they conjecture, "is the chief cause of the phenomena of spasmodic asthma."

Changes take place in the air inspired essential, as is well known, to the continuance of life, and it is so ordered that the movements of respiration go on uninterruptedly when we are asleep and unconscious, as well as during our waking hours—that this great function is forgetful of repose. The first act of the new born child is to inhale the vital air; the last effort of the expiring man is to command its receding wave. Not only is the process involuntary, but it is aided by physical laws which operate as well upon inanimate mattar as in the living systems of animals. The air itself assists, by certain qualities impressed upon it, in the respiratory movements, having in view changes in its condition.

According to the law observed in the diffusion of gases, the carbonic acid evolved in the air-cells will, independently of any respiratory movement, tend to leave the lungs, by diffusing itself into the external air where it exists in less proportion; and, according to the same law, the oxygen of the atmospheric air will tend of itself towards the air-cells in which its proportion is less than in the air in the bronchial tubes or external to the body.—But for this tendency of the oxygen and carbonic acid to mix uniformly, within and without the lungs, the *reserve* and *residual* air would, probably, be very injuriously charged with carbonic acid; for the respiratory movements alone are not enough to empty the air-cells, and perhaps expel only the air which lies in the larger bronchial tubes. Probably also the change is assisted by the different temperature of the air within and without the lungs; and by the action of the ciliæ on the mucous membrane of the bronchial tubes, the continual vibrations of which may serve to prevent the adhesion of the air to the moist surface of the membrane.

Regarding the quantity of carbon excreted from the lungs in respiration, writers on the subject are not agreed. Andral and Gavarret state it at nine ounces per day; Coathupe makes it scarcely five ounces; while Liebig computed the quantity that escapes from the lungs and skin at 13.9 ounces. Some of these discrepancies, as our authors remark, are no doubt due to the variations to which the exhalation of carbonic acid is liable in different circumstances.

The quantity of oxygen consumed in respiration is greater than is shown in the carbonic acid exhaled from the lungs, in the proportion of 1583 to 1345 cubic inches, or nearly 635 grains, in the hour. This waste goes, probably, to form the carbonic acid given off by the skin, and to oxidise the phosphorus and sulphur, which are excreted as phosphates and sulphates in the urine. Valentin and Brunner have attempted to show that the exchanged quantities of oxygen and carbonic acid are always in pro-

portion to their *diffusion volumes;* but there are weighty objections to so stringent a law. If the exchange of gases were according to this law, we should have none of those variations which the varying condition of the general economy seems to render necessary; the proportions would remain inflexibly fixed. But this is not the case, and, in the nature of living things, ought not. Besides, as objected by our authors, "the conditions of the gases engaged in respiration are not those in which the law of diffusion would exactly hold." They are not free and under equal pressure; and, no doubt, this explains the deviations from the law, "while it is really in operation."

It has been a question whether carbonic acid existed in the blood, but all doubts respecting it have been removed by the experiments of Magnus, who has shown that it, as well as oxygen, is mingled with the fluid, both in the arteries and veins. This experimenter has also shown, that the relative proportions of these gases (now no longer in the gaseous state) differ in the two kinds of blood. In that of the arteries, the quantity of oxygen is twice as great as in venous blood, or ten per cent. of the volume of the former, and only about five per cent. of the volume of the latter. On the other hand, the quantity of carbonic acid is less in arterial than in venous blood, "amounting to about twenty volumes per cent. in the former, and twenty-five per cent. in the latter."

Till the existence of the gases in the blood was clearly proved, the theory most favored was, that the oxygen of the atmospheric air permeates the membranous walls of the air-cells, enters the blood, and there at once combines with carbon derived from the disintegrated tissues, to form carbonic acid, which escapes, together with the greater part of the nitrogen previously absorbed from the atmosphere. It could be well objected, even when the existence of gases in the blood was doubtful, that if this theory were true, the lungs ought to be much warmer than other parts of the body, through the quantity of heat

given out in the quick union of the carbon with the oxygen of the atmosphere; and that such was not found to be the case; the temperature of the blood in the left side of the heart being never more than one or two degrees higher than that in the right.

It has not yet been decided whether part, or the whole of the oxygen imbibed is at once united chemically with any of the constituents of the blood; but our authors incline to the opinion that the greater portion is held in solution "by the fluid part of the blood," and that the emission of carbonic acid and the imbibition of oxygen are effected upon the general plan of secretion and absorption of fluids by other organs, not by the diffusion-process just adverted to. The reaction between these gases, they hold to be the great source of *animal heat*, concerning which they remark–

Many things observed in the economy and habits of animals are explicable by this theory, and are, therefore, evidence for its truth. Thus, as a general rule, in the various classes of animals, as well as in individual examples of each class, the quantity of heat generated in the body is in direct proportion to the activity of the respiratory process. The highest animal temperature, for example, is found in birds, in whom the function of respiration is most actively performed. In Mammalia, the process of respiration is less active, and the average temperature of the body less, than in birds. In reptiles, both the respiration and the heat are at a much lower standard; whilst in animals below them, in which the function of respiration is at the lowest point, a power of producing heat is, in ordinary circumstances, hardly discernible. Among these lower animals, however, the observations of Mr. Newport (xliii. 1837) supply confirmatory evidence. He shows that the larva, in which the respiratory organs are smaller in comparison with the size of the body, has a lower temperature than the perfect insect. Volant insects have the highest temperature, and they have always the largest respiratory organs and breathe the greatest quanti-

ty of air : while among terrestrial insects, those also produce the most heat which have the largest respiratory organs and breathe the most air. During sleep, hybernation, and other states of inaction, respiration is slower or suspended, and the temperature is proportionally diminished ; while on the other hand, when the insect is most active, and respiring most voluminously, its amount of temperature is at its maximum, and corresponds with the quantity of respiration. Neither the rapidity of the circulation, nor the size of the nervous system, according to Mr. Newport, presents such a constant relation to the evolution of heat.

Similar evidence in favor of this theory of animal heat is furnished by the fact that heat is sometimes evolved by plants, in a quantity which appears to be in direct proportion to the amount of oxygen they at the same time absorb and convert into carbonic acid. For example, their evolution of heat is most evident during flowering and the germination of seeds, the times at which the largest amount of carbonic acid is exhaled.

The quantity and quality of food consumed by man and animals in the different climates and seasons, also appears to be adapted to the production of various amounts of heat by the combination of carbon and hydrogen with oxygen. In northern regions, for example, and in the colder seasons of more southern climes, the quantity of food consumed is (speaking very generally) greater than is consumed by the same men or animals in opposite conditions of climate and season. And the food which appears naturally adapted to the inhabitants of the coldest climates, such as the several fatty and oily substances, abounds in carbon and hydrogen, and is fitted to combine with the large quantities of oxygen which, breathing cold dense air, they absorb from their lungs.

We propose to continue our notice of this interesting volume, in a future number.

Art. VII.—*A Dissertation on the Practice of Medicine, containing an account of the causes, symptoms, and treatment of diseases: and adapted to the use of Physicians and Families.* By Tomlinson Fort, M. D. 1 vol. 8vo. pp. 740. Milledgeville, Ga.

A very queer volume, bearing the above title, has been laid upon our table. As the production of an *American Physician*, it was taken up with more than ordinary pleasure, and examined with more than ordinary care and attention. We are sorry to say, however, that we were disappointed in our pleasant anticipations, and but poorly repaid for our labor.

We do not, therefore, regret that our limited space prevents an extended review—the brevity of this notice bearing an accurate ratio to the real value of the work.

If our author had but reflected a moment before he engaged in his undertaking, he would certainly have seen that the space which he has allowed himself is entirely too small to contain more than the *merest fraction* of what is valuable in the Practice of Medicine, Materia Medica, Surgery, and so much of the Obstetric Art as is embraced in Diseases of Females—with a Lexicon superadded! especially when so much of that space—small as it is—is taken up by matter which would have appeared to more advantage in the "Funny" column of a country newspaper, than in a sober treatise of Practical Medicine.

Altogether aside, however, from this, we do not think that a work on the "*Practice of Medicine*," in which an actually greater space is devoted to *Mesmerism and Somnambulism*, than to Phthisis; or to the whole subject of Diseases of the Heart; or to Pneumonia and Pleurisy—which, by the way, the author, singularly enough, says cannot be distinguished from each other:—in which Auscultation is only mentioned to be derided, and Percussion is never once even hinted at: and in which the Hydriodate

of Potash is said to be "*a tripple compound of* MERCURY, *Iodine and Potash;*" such a work, we say, we do not think will be consulted by experienced Physicians, with much expectation of benefit to be derived therefrom; nor can it be considered a very reliable guide for the student of medicine, or the "*dear people*" who figure so largely in its title-page and introduction.

There is one observation made by the author in his preface, which, for its modesty, deserves great commendation. "This work," says he, "is in its nature ephemeral; its author does not claim for it a place among the standard works of the day." We are glad to learn that this is the case, for it shows that he possesses one happy faculty not common to every writer, viz: a proper appreciation of the merits of his own labors.

We trust that Dr. Fort will allow us to assure him that this plan of making "every man his own doctor," (which is one of the designs of this volume) will not, and from the necessity of the case, cannot succeed: the attempt will never be productive of any good to the community at large, and must always redound, as in this case, to the discredit of the author—of whom we now take our leave with the kindest feelings, commending to his careful study, among other things, Materia Medica and Auscultation and Percussion. A more extended knowledge of both of these subjects will surely not injure his reputation, either as a practitioner, or as a writer on Practical Medicine.

R. J. B.

ART. VIII.—*A Manual of Auscultation and Percussion.* By M. BARTH, Agrégé to the Faculty of Medicine at Paris, &c., &c., and M. HENRY ROGER, Physician to the Bureau Central of the Parisian Hospitals, &c. &c. Translated, with additions, by FRANCIS G. SMITH, M. D., Lecturer on Physiology in the Philadelphia Association for Medical Instruction, one of the Editors of the Medical Examiner, &c., &c., 8vo. pp. 167. Second edition. Philadelphia: Lindsay & Blakiston. 1849.

We are pleased to find that this very valuable work has reached the second edition. We well remember with what advantage we consulted the original, while pursuing the studies of which it treats, in Paris. The translator, Dr. Smith, has corrected, in the present edition, the few errors that escaped him in the first, and has introduced such additional matter, as was demanded by the existing state of the science of auscultation and percussion. "As a short manual of the most important diseases of the chest and abdomen, and their method of diagnosis by physical signs," we are acquainted with no work that possesses stronger claims to the confidence of the profession than the one before us. A condensed manual on the subject has been much and long needed, by beginners in the study of auscultation and percussion, and while this work is of the description alluded to, and addressed particularly to this class of readers, it at the same time will form a pleasant and serviceable companion for the practitioner. As we remarked in a notice of the first edition, it is one of the most esteemed of the text books used by the Parisian medical student, and its principal author, Dr. Barth, is one of the most skilful of living auscultators. All of the above works are for sale in this city at the bookstore of Messrs. Beckwith & Morton.

D. W. Y.

SELECTIONS

FROM

AMERICAN AND FOREIGN JOURNALS.

Use of Nitrate of Silver for White Swellings, Hydrarthrosis, and Venereal Bubo.—M. Decaisne, military surgeon at Anvers, has published, in the Archives de Médecine Militaire, some observations on this subject; two remarkable cases are given. One of the patients was a man of 27 years of age, and of a lymphatic temperament, who, on the night of the 5th of February, 1847, felt a severe pain in the right knee; swelling soon followed, and the patient was unable to use the limb. Every means were had recourse to for his relief—antiphlogistics, baths, calomel and opium, blisters, iodine, mercurial ointment, compression and douches, without any effect in arresting its progress into regular white swelling. In the month of July, M. Decaisne began the use of an ointment of nitrate of silver, when the knee was double its natural size, was so tender that the patient dreaded its being touched, all motion in the joint impossible, and three fistulous openings at the inner side of the joint; amputation appeared inevitable; and in this very unfavorable aspect of affairs, it was ordered to employ friction twice a day of an ointment composed of one gros (59.1 grains) of the salt of silver to an ounce of lard; about two gros of the ointment were used at each application. Under this treatment the pain sensibly abated in a few days, the swelling gradually diminished, and in about a month the improvement, in every respect, was considerable. During the

month of August, the proportion of the nitrate of silver to the lard was increased to a gros and a half or two gros to the ounce of lard, and at length, at the end of the month, the cure was complete, and the young man only experienced a slight stiffness in bending the knee.

The second case was that of a young boy, attacked with a white swelling of the radio-carpal articulation. Previously to the employment of the ointment of the nitrate of silver in this case, a number of the more active remedies had been tried in vain; the swelling was considerable, and it was necessary to open a large abscess near the articulation. After using the ointment of the nitrate of silver for two months the amelioration was considerable, or rather the cure was completed.

After giving the above cases, the Journal de Médecine adds the following remarks: Other cases, where the salt of silver in the form of ointment have been recently published in the Archives de la Médecine Belge, by Professor Uytterhoeven; he used it in a great number of cases, but all those he details were dropsy of the joints, not white swelling. The ointment of nitrate of silver possesses a resolutive action upon those serous swellings of joints. This therapeutic agent should not be employed until the inflammatory stage has passed.

In making the ointment it is necessary to dissolve the nitrate of silver in water before incorporating it with the lard, to prevent the rubefacient or cauterizing effect of the metallic salt on the skin, or the formation of vesicles, which without this precaution would be inevitable. Generally smart pain, but transient, is experienced on the application of this remedy at the place on which it is rubbed.

The power of this ointment to resolve venereal buboes has been experienced in the practice of M. Lutens; he dissolved a drachm of the salt in a sufficient quantity of distilled water, and then mixed it with an ounce of lard. His mode of using it is this,—about two drachms of the ointment are used at each rubbing; after three or four days the skin becomes black and shining; instead of suspending the treatment until the epidermis desquamates fully, the scales are detached with a nail, or a spatula, and the frictions immediately recommenced. These frictions never occasion pain, but sometimes a slight uneasi-

ness. M. Lutens uses this ointment also in glandular swellings of the neck and groin, and in all stages of bubo. —*Dublin Med. Press.*

On the Neck as a Medical Region, and on Paroxysmal Paralysis. By Marshall Hall, M. D., F. R. S., &c.— When I contemplate the nervous, vascular, and muscular structures of the neck, with their relative positions and varied functions, I am astonished at the fact, that in their physiological actions they are never found to interfere materially with each other. I am not the less struck with another fact, that in their pathological conditions these interruptions should so constantly occur, and yet that they have hitherto escaped, in great measure, the observation and attention of physicians.

An athletic person may carry an enormous weight on his head, accurately balanced by the action of the muscles of the neck, without the slightest interference with either the nervous or vascular structures so diffusely and variously spread over this region.

But let *pathological* action, the result of emotion, or excito-motor energy, occur, and then interruption of the course of the blood, and nervous action, the most dire and terrific, ensue.

I have adverted to the nervous, vascular, and muscular structures along the neck; but another element remains to be added; this is the *larynx*, the morbid actions of which, viewed both as effects of preceding causes, or the cause of ulterior effects, are full of the deepest interest.

Nor ought I to omit entirely to notice the pharynx and œsophagus as belonging to this region, and contributing their own influence to the *Class* of morbid phenomena, of which it is the seat.

As remoter organs intimately associated with the pathological actions of the structures in the neck, I must chiefly notice the medulla oblongata and the cerebrum, on the one hand, and the lungs on the other, and especially in their varied relations to comatose, spasmodic, and asphyxial affections.

When the surgeon contemplates the anatomy of the neck, his attention is principally directed to the *arteries*,

which may become the subjects of his anxiety and care in practice, whether wounded by accident or diseased by morbid processes, or to be avoided in an operation.

But to the physician the *veins* of the neck are the chief objects of interest. If morbidly compressed, and their blood impeded in its course from the encephalon, many diseases of the utmost moment, are the painful and even terrible result.

The larynx and trachea may be said to present objects of the deepest interest both to the physician and surgeon being equally the seats of disease and of accident, of medical treatment and of surgical operation.

The physician has only to observe the various movements of the eyeball, of the features, of the tongue, of the lower maxilla, of the neck, of the larynx, of the pharynx, &c., to arrive at the conclusion, that in the various spasmodic diseases there is no muscle which may not become, singly or together with others, the subject of spasm.

This principle being admitted, it is only necessary to observe, further, what must be the effect of each of such spasmodic actions, to comprehend the cause and nature of the various symptoms—effects of these—which characterize these diseases.

In estimating the value of this subject, we must bear in mind the principle which has been already enunciated, viz: the difference between the well balanced and harmonious *physiological* actions of the neck, and the abnormal, morbid, and discordant actions of these same muscles in disease, with their *pathological* effects on the subjacent or contiguous structures.

Let us contemplate in this manner the effect of morbid and irregular action of the platysma-myoides, and of the cleido-mastoid and omo-hyoid muscles, on the subjacent external and internal jugular veins respectively.

And shall we leave the arteries and nerves of the neck out of the question, as uninfluenced by these abnormal muscular actions?

But I can impart no idea of the interest attached to a careful observation of the condition of these *veins*, and thence of the capillary vessels, and of the arteries; in a word, of the whole *arrière* circulation, in cases of morbid action of the muscles of the neck.

The external jugular and the frontal veins; the color of the cheeks, of the eye and internal eyelid; of the prolabium; the temporal artery; present the phenomena of impeded venous circulation in the most marked degree.

These different points in the cephalic circulation should be examined with the care with which we are wont to examine the conditions of the pulse. The neck should be laid bare, the under eyelid should be everted, the temporal artery should be carefully felt.

One anxious mother could *foretel* the epileptic seizure in her daughter, by observing the fulness of the veins of the neck. One lady observed these veins occasionally to acquire the size of her finger. A medical gentleman drew my attention to the congested condition of the conjunctiva of the under eyelid in his own case. Many patients have presented a cord-like tension of the temporal arteries.

All these phenomena constitute links of the same chain; the first link being compression of the venous trunk by the irregular contraction of the muscle or muscles seated immediately above it; and the last, perhaps a paroxysmal threatening or seizure.

It may be laid down as a principle, that there is no muscle—no set of muscles—in the neck, which may not become spasmodically contracted, and that there is no vein in this region which may not, under the influence of such contraction of muscles, become compressed, and the course of whose blood may not be impeded or arrested. Let us consider the further effect of such compression on the tissues or organs of the head or neck. We shall be led to consider a novel and very interesting question in the pathology of the nervous system. One circumstance must be carefully remembered—the effect of interrupted return of blood along the external jugular is, from its connexions being superficial, far more observable than that of a similar interruption in the internal jugular or vertebral, which can often only be inferred from the symptoms.

I now proceed to consider this subject more especially in regard to certain characteristic affections of the nervous system, which I believe to be at once overlooked, and yet of great importance and prevalence.

We have all heard much of the *tendency* of blood to the

head, a condition of the circulation which, in reality, scarcely exists; and we have scarcely heard of *impeded return* of blood from the head, an event of most frequent, nay, of daily occurrence. In reality, I believe the latter affection has been mistaken for the former.

There is no principle in physiology which could induce or explain tendency of blood to the head. M. Poisseuille has irrefragably shown that the power of the heart is equal in all the bloodvessels of equal size, and of equal distance from the heart. Nothing can influence this force except position, exercise, or muscular effort, or hypertrophy of the heart itself, which may augment the rapidity and force of the circulation; but then this augmentation of the rapidity of the circulation is general and diffused, like its original force, equally in all the vessels of equal size and form, and at equal distances from the heart.

Widely different is the course of impeded flow of the blood along the veins. An individual vein may be compressed, and the flow of blood along its course, and its return from the organ in which it originates, is impeded; the capillary vessels, or, as I would term them, the methæmatous channels, are gorged and congested, and the arteries become rigid and throb.

This state of things is conceivable. But this is not all. It is of the most frequent and daily occurrence. And here again I beg to adduce a view of the subject which I believe to have been overlooked. *It is a newly discovered principle in pathology.*

We have only to watch the condition of the platysma-myoides, and of the external jugular vein, to observe that the contraction of that muscle is frequently spasmodic, and the dilatation of the vein, and of the veins which lead to it, a constant effect.

Spasmodic action of the muscle, then, may tend to the obstruction of the course of a vein, and to consequent congestion of its roots, and of the blood channels, to which it serves as a drain.

I must be allowed to repeat, that this action of the muscles must be abnormal and spasmodic, for, as I have said, normal muscular action does not produce this effect. All the muscles of the neck, for example, may be summoned into normal action of the most energetic kind, as in carrying a heavy load on the head, without producing

this effect. But let this action be abnormal, irregular, spasmodic, violent therefore, and without equipoise, and a very different result is observed; the subjacent vein may be compressed, and all the consequences of such compression may occur, viz: distention of its roots, and of the blood-channels, placed intermediately between them and the corresponding branches of arteries, which latter become rigid and throbbing.

Another pathological principle must be adduced in this place. Let any one observe the eyes, the countenance, the tongue, the neck, the hands, &c., in spasmodic disease. They will be satisfied that there is no individual muscle, no series of muscles, which may not be excited into abnormal and violent, because spasmodic action.—There is consequently no vein within the influence of such action which may not be compressed. As a further consequence, there is no organ which delivers up its blood to such vein, which may not be the seat of congestion, and, if I may so express myself, of the apoplectic state.

Now, in the region of the neck there are *four* veins of vast importance in this point of view; these are—

1. The External } Jugulars;
2. The Internal }
3. The Vertebral;
4. The Subclavian.

Now, the external jugular is compressed by the action of the platysma-myoides; the internal jugular, by that of the cleido-mastoid and the omo-hyoid muscles; the vertebral and the subclavian veins may be compressed, and the course of the blood in them impeded or arrested, by the spasmodic action of the scaleni, the subclavius, the pectoralis minor, &c.

To show the influence of abnormal contraction of the muscles on the subjacent or adjacent veins, I may mention the fact, that even the pulse of the artery at the wrist may be stopped by violent voluntary action of the pectoralis minor, and other muscles similarly seated.

The compression of each of these veins induces its own peculiar effect.

The external jugular is frequently compressed by the action of the platysma-myoides, the effect of emotion, and blushing is the consequence; in other cases, the su-

perficial veins of the neck, face, forehead, temples, &c., are seen to become tumid, the face to flush, and the temporal arteries to throb.

The internal jugular may be compressed without any obvious external sign, its roots being deeply seated. But the brain suffers, and there may be one or more of the varied symptoms of *cerebral* epilepsy—that is, momentary loss of consciousness, affection of the vision, or ringing in the ears.

If the vertebral vein be obstructed, there are some of the symptoms of affection of the medulla oblongata, or of *spinal* epilepsy—that is, laryngismus, strabismus, odaxismus, twisted neck, &c.

Lastly, when the subclavian is compressed, the hand of the patient becomes livid and cold. Such an event I have just witnessed, and, indeed, watched, in a little patient, conjointly with Mr. Hodding. The lividity and its accompanying coldness alternated with return of the natural color and warmth from time to time, as the action of the subclavian (as I suppose) varied.

Some action of this kind also doubtless affects the mamma and the nipple, under the influence of what is called "the draught," and of the erectile excitement of the nipple on the pressure of the lips of the infant.

Other glands may be affected in a similar manner, excited, or arrested, by similar means, especially the salivary.

The subject of impeded venous circulation is not exhausted. It is physiological as well as pathological, though most frequently the latter, and always traceable to emotion, or excitants of a reflex action, and *the Spinal System*. Once more a new field of inquiry opens upon us.

It must be here observed, that compression of the subclavian vein may affect, not the brachial vein only, but, in a secondary manner, the vertebral and the jugulars; and it is to be particularly borne in mind, that the veins of this region are not affected *singly* in the manner I have described, but variously together.

I repeat that, in spite of anything which I may have written, or may write, respecting the action of individual muscles on individual veins in the neck, *it is not by any regular and physiological convulsion, but by irregular ab-*

normal, and violent GROUPING *and* CONTRACTION *of the muscles of the neck, that compression of the veins of this region become variously affected with its consequences.*

I have now to evolve a fourth pathological principle in relation to this subject. The actions of the muscles to which I have adverted being one and all spasmodic or convulsive, the effects of this on the veins, and more remotely on the cerebrum, or on the medulla oblongata, are—*paroxysmal.* And this remark leads me to mention, in the most emphatic manner, that not only coma in the apoplectic state, but hemiplegia and partial paralysis, and mania, may, as well as epilepsy itself, be paroxysmal, be dependent on intra-vascular congestion, and exist entirely independent of extra-vascular, or other physical change They may be evanescent, therefore, and so, far, very far, less grave than other forms of these diseases.

I feel that this subject, in all its relations to its causes, its rationale, its prognosis, is of vast importance in medical science and art.

Emotion and *causes of reflex action* may induce contraction of the muscles of the neck—*trachelismus.* This may compress the veins of the neck, and induce a condition which may be designated *phlebismus.* This leads to congestion of the intermediate blood-channels and the apoplectic state; and this, primarily or secondarily, to comatose, to paralytic, to maniacal, to epileptic affections, all having the one characteristic feature—that of paroxysmal and evanescent forms. I imagine that this view of the subject is equally original, important, and extensive. The events of each day's practice prove that these paroxysmal forms of diseases of the nervous system, not formerly viewed as paroxysmal, are extremely frequent. In fact, I believe a new ray of light is being shed on apoplexy, and even on paralysis and on mania, in their varied forms —in a word, on a *whole Class* of paroxysmal diseases.

I would here specially remark, or repeat, that impeded flow of blood along the external jugular is seen, first, in the fullness of this vessel itself; second, in that of the intermediate blood-channels; and third, in that of the temporal artery; and that the effects of compression of the subclavian are seen in the lividity and coldness of the hands and fingers; but the *arrière* connexions of the internal jugular and of the vertebral veins are more deeply

seated, and impeded circulation in these vessels is manifested chiefly by *symptoms*—the symptoms of cerebral and of spinal epilepsy respectively.

I may now ask an important question—What are the exciting causes of trachelismus and its phenomena? And I answer, first, emotion; and second, the excitants of reflex action—new subjects of investigation and study in the science and art of medicine.

I am quite aware that neither the professional nor the public mind—they are, indeed, nearly on a par—are raised sufficiently for views so "rational." But, then, I do not write for the present day; and the day will come—and I shall promote its advent—when medicine will form a Science, based on physiology, and calling in the aid both of theory and of observation. These fountains of science will be viewed as allies, not as opponents, and we shall have our Adamses as well as our Hinds, even in medicine. The great Louis, in devoting himself to *observation*, and rejecting the *dreams* of Broussais, would be the last to oppose just and legitimate *theory*. It is strange that in the nineteenth century we should be gravely urged to look and listen, but not to reason or to think; to observe, and yet not to experiment, not to theorize. Besides, theory, and even hypothesis, leads to observation, by teaching us how and what to observe. The hypothesis of a planet exterior to Uranus led to the detection of Neptune. What reflex actions were noticed formerly? Yet who, except the prejudiced, fail to observe them now?

I here conclude this little sketch, but not without one or two final practical remarks.

There is no degree or form of apoplexy or mania which may not be paroxysmal, and dependent on trachelismus. This is also true of paralysis. One patient suddenly and completely lost the power of articulation at one time, and of writing at another, to recover them after an interval. Another patient lost the power of articulation; a second, the use of the arm, and a third, the use of both arm and leg, yet only for a time.

In most of these cases, but not in all, the paralysis is not only paroxysmal, but more or less combined with spasm—that is, they are not cerebral only, but spinal.

The difference between these paroxysmal forms and the

permanent forms of this Class of disease, will now be perceived to be immense. They are especially more curable.

The objects forming this class are far more intimately allied than has been supposed; apoplexy, paralysis, mania, have alike resulted from an epileptic seizure. Minor degrees of the former have occurred from milder degrees of the latter; and even in the entire absence of epileptic symptoms. But to the physiologist there is a bond of union between them all. All may equally, and conjointly or separately, arise from emotion or the excitants of reflex action; from the occasional effects of these inducing contraction of the muscles of the neck, of this on the veins, of this again on the capillary circulation, of this on the condition of the cerebrum, and of the medulla oblongata—whence the Class of paroxysmal, cerebral, and spinal diseases.

Before I conclude I must make one further remark on the structure of the veins of the neck. These are so provided with valves at their conjunction with the subclavian as to cut off the influence of the venous circulation in the fore-arm and arm. Without this provision, each energetic use of the anterior extremity, as when the blacksmith raises his heavy hammer, or strikes with violence on the anvil, would be attended by a blow or shock to the cerebrum, or the medulla oblongata.

One more remark, which I owe to Mr. Hilton, of Guy's. The subclavian artery and vein are protected from the ordinary and normal action of the subclavian muscle by a firm fascia. It is only in its violent abnormal and spasmodic action that the hard and tumid belly of this muscle is made to compress the subjacent vein.

I have, on a former occasion, drawn the attention of the profession to the important distinction between paralysis and spasmo-paralysis. In this paper I have, I think, done a service to my profession by calling its attention to *paroxysmal* paralysis, as well as to other paroxysmal affections of the nervous system. These two forms of nervous affection may be combined in the same individual, or occur separately, and present a subject for careful investigation.

I have also noticed cerebral epilepsy. This affection is nearly allied to the paroxysmal form of apoplexy.

As to paroxysmal mania, it is similar in nature to the mania which succeeds to a fit of epilepsy, only occurring without epileptic phenomena.

The principles of treatment embrace the *prevention* and the actual *remedy*, and consist in avoiding or removing causes—1, of emotion; and 2, of reflex action. I must not on this occasion enter into particulars.

I conclude by the following brief recapitulation of the topics thus briefly discussed for the first time in medical literature:

1. Emotion and Excitants of Reflex Action;
2. Irregular and Inordinate Contraction of the Muscles;
3. Compression of the Veins;
4. Congestion of the Organs en arrière:
5. Cerebral and Spinal Paroxysmal Diseases—viz:
6. Paroxysmal Apoplexy, Paralysis, Mania, Epilepsy, occurring singly or consecutively.—*London Lancet.*

On the use of Glycerine in Diseases of the Ear. By Thomas H. Wakley, Esq., Surgeon to the Royal Free Hospital, London.—The anxiety which is always manifested by the public to take advantage of any new discovery or successful mode of treatment connected with the removal of disease, affords a strong proof of the confidence which is generally entertained by the community in the power of medicine as it is practiced in this country. In this respect, a marked difference is shown in the conduct of the professional and non-professional portion of society. This is not extraordinary, as afflicted persons naturally seek for the readiest mode of obtaining relief. The medical practitioner, on the contrary, first considers the rationality of any proposed method of effecting a cure. His studies have taught him to reflect and to reason, and the results of experience have admonished him not to form conclusions too hastily, or to generalize too widely from restricted data. But it must not be inferred, that because the medical practitioner is less prompt than the public in resorting to the aid of a new agent, that his confidence in the powers of the healing art is less forcible, or is less deeply fixed in the founda-

tions of his judgment, than is that of the non-professional community; on the contrary, the confidence which he feels is not the offspring of an unreflecting, ill-sustained faith—it is not a weak superstructure, raised upon the narrow basis of a single fact, but arises from, and is sustained by, the broad and solid foundations of science, reason, and experience. It is well for society and the progress of knowledge that the minds of medical practitioners are thus trained and disciplined; for if it were a custom with them, without hesitation and reflection, to adopt and sanction every newly-announced successful plan of treating disease, the subsequent failures, in a great majority of the novel plans, would soon destroy all confidence in the practice of medicine, not only in the public mind, but amongst physicians and surgeons themselves. Probably one of the causes which has tended in a great degree to establish and sustain the confidence of the community in the practice of medicine, has been the judicious caution which practitioners of eminence have exercised before they have resorted to new means of cure; and secondly, the candor and integrity which they have so often displayed in publishing the results of their experiments and experience. It is honorably felt that much deliberation and caution is due alike to a noble science, to the just claims of society, and to the axalted character of a dignified profession. If every example of the successful treatment of disease, by a new remedy, were to be published, the minds of practitioners, if not strongly fortified by previous study, and habits of thoughtful investigation, would become in danger of being involved in confusion by the dazzling announcements of numberless triumphant experimentalists. It is, therefore, forcibly felt by the profession, that before a new mode of treating disease be recommended, something more substantial than speculation or hypothesis should be available to warrant its adoption. Reflections of this kind have induced me to pause for a very considerable period before I determined respectfully to submit to the consideration of the profession, the humble pretensions which I am desirous of establishing for *glycerine* in the treatment of certain forms of deafness. The strong conviction which I entertain as to the utility and value of this remedy is the only apology I can offer for claiming, even for a moment, the attention of

the profession on such a subject. I have no new doctrine to inculcate; no new discovery in physiology to enforce; no "great fact" in pathology to disclose. The sum total of my aim on this occasion is, to contribute a fact to our therapeutic store, which, although it may be regarded by some as a very insignificant item, is one which I think ought to be very generally known. I have already adverted to the confidence felt by the public in the capabilities of medicine, as a practical science, and to the eagerness shown by society to take advantage of any newly-announced medical or surgical remedy. Unfortunately, that unsuspecting desire to seize, with blind faith and hope, on any new proposal for curing disease, is, in this country, the fertile source and support of all those partial, detached, and empirical systems of practice, which are, and ever must be, denounced and repudiated by every well-educated practitioner.

The medical officers connected with the public institutions of this vast metropolis command the most ample opportunities of observing the strong tendencies of the public feeling with respect to the adoption of new remedies. Scarcely is a new fact of any importance connected with the cure of disease published in the periodical journals, when the "out-patients" at the public hospitals make the proposed remedy the subject of common conversation amongst them. Frequently, the applicants for relief even ask to be treated on the "new plan," and sometimes they request to be given some of the "new medicine."

One of the most striking instances of the lively effect produced by the first announcement of a "new plan" of treatment, was afforded, in the summer of last year, by the publication in the Lancet for July 1, 1848, of the first of a series of valuable papers by Mr. Yearsley, entitled, "On a New Mode of Treating Deafness." Immediately after the appearance of those papers, an influx of a new class of patients was observable in the Royal Free Hospital. The members of that new class of persons were afflicted with deafness, and often was the remark made by them, "I wish, if you please, to be treated upon the new plan;" or the question was asked, "if there had not been discovered a cure for deafness?" Such inquiries from patients suffering under actual disease, many of whom

stated that they were deprived of the means of obtaining a livelihood, in consequence of their infirmities, suggested the questions—"What ought the surgeons of a public general hospital to do, under such circumstances?"—"Ought these patients to be rejected at this place, and transferred to the institutions specially devoted to diseases of the ear?" It appeared to be just that the patients should be received.

Accordingly, I resolved to attempt to confer a benefit on the applicants, by adopting and following out the plan of treatment recommended by Mr. Yearsley; and this resolution was carried into practice with results which rapidly increased the number of expectant patients.—Would it have been right, I ask, to refer such patients to other institutions by rejecting their supplications for relief, or, worse still, to consign them possibly to a class of not over-scrupulous practitioners, who profess to work miracles, but fortunately whom medicine does not claim, or in any manner recognise, as her legitimate children. Let it not be considered, from these remarks, that I deprecate a division of labor in the practice of medicine and surgery. On the contrary, I distinctly acknowledge, that an intense scientific application devoted to "specialties" in the investigation and treatment of disease has been productive of highly useful and important results. At the same time, such divisions of labor cannot, in my opinion, justify the surgeon of a public hospital in neglecting the consideration and treatment of any class of diseases which properly fall within the field of his observation. I need not dwell upon the importance of the sense of hearing.—Why should a surgeon admit that a disease of the eye or the tongue properly demands his interference and best attention, and then altogether reject as unworthy of notice or consideration the deranged structure of the organ of hearing. The principles of diseased action are the same in all the vital organs, although peculiarities of tissue produce different morbid results.

During the existence of the first flush of success, the value of Mr. Yearsley's new method of treatment may have been over-estimated. This was not his fault; and the fact cannot be disputed, that Mr. Yearsley openly and candidly submitted his views to the notice of the profession. However, it happened that poor patients, in con-

siderable numbers, claimed, at the portals of the public hospitals, to be recipients of the advantages of the new discovery, and I then thought, and still think, that it would have been ungracious and unfeeling to have rudely directed the sufferers to apply elsewhere for relief.

The adoption of the plan of treatment recommended by Mr. Yearsley was an appropriate recognition of the value of his labors. The success which attended the use of the simple operation which he recommended was, as I have already remarked, very striking in the first instance. In several cases, the effect of the application of the wetted cotton, in which the tympanum had been perforated by ulceration, was even extraordinary. But it too frequently happened, that the relief obtained was of an ephemeral duration. On applying the wetted cotton, the power of hearing, in several instances, which had been lost for a very long period, was instantaneously restored—an event which excited the most profound astonishment in the minds of patients and their friends. Too soon, however, was it perceived that the newly-acquired power gradually subsided, and the sense of hearing returned to its previous imperfect condition. The relapse frequently produced a feeling of dejection in the spirits and hopes of the patient which it was painful to witness. The benefit derived from the application, in the first instance, was undoubted, and could not be mistaken: hence arose the question—Why was it of so evanescent a character? This inquiry naturally suggested a minute investigation into the nature of the materials employed, and also their immediate and remote influence on the parts to which they were applied. A brief investigation, a few experiments, and an attentive consideration of the subject, induced me to attribute all the conferred advantages to the effects produced by the water, and to reject the cotton as nearly, if not entirely, useless. It even appeared that after the water had evaporated, the retained dry cotton became an additional impediment to the function of hearing. What was to be done? What were the indications which such facts seemed to establish? Evidently the use of some agent, which, by offering a successful resistance to evaporation, should retain its moisture, and continue to lubricate the auditory canal. Clearly enough, it was from the moisture that the benefit was obtained, and from a con-

tinuance of the moisture was the advantage to be prolonged. On duly considering all that I had observed, it appeared to me that *glycerine* was the only agent which was at all likely to accomplish the object I had in view. After consulting with Mr. Lloyd Bullock, of Conduit-street, relative to the composition and properties of glycerine, my opinion as to the propriety of giving it a trial was confirmed; and Mr. Bullock kindly manufactured for me a small quantity of the preparation in its purest form. This portion I obtained from Mr. Bullock in the first week of August, 1848, and employed it immediately in several cases, with apparently the most complete success. One of the patients, aged nineteen years, was a relative of Mr. Braithwaite, the celebrated engineer. In this instance the deafness had existed from infancy. Reports of four of these cases will be found amongst those attached to this paper. They were the first I treated with the new agent. In all these patients the wetted cotton had failed to produce a lasting benefit. Two of the four patients are now completely cured; and the other two are so far recovered as only to find it necessary to resort to the glycerine at distant intervals. The success of the new remedy, in these and many other instances, has attracted much notice; and I have now used the glycerine in upwards of three hundred cases of deafness. On many occasions it has been employed without any advantage whatever. In other instances the benefit was considerable for a short time, and then disappeared. In numerous cases, however, by the use of it, the power of hearing has been completely restored.

It was only after much experience in the application of glycerine, and from observing its action in a great number of cases, that it could be ascertained what were those conditions of the ear in which it was most likely to prove of advantage. Contrary to what might have been anticipated, the use of the remedy was successful in persons in whom the deafness had been of many years' duration—one, for example, thirty years, and also in cases where the existence of the malady could be traced to the eruptive fevers of childhood. In instances of deafness caused by inflammation, followed first by suppuration, and then by a horny, dry condition of the auditory canal, the application of glycerine has been attended with signal ad-

vantage. Equally marked and peculiar is the success when it is used in cases where there is a partial or total absence of ceruminous secretion. In many instances of deafness belonging to these classes of cases, the employment of glycerine has been followed by a perfect restoration of the power of hearing. In other examples of deafness, where the membrana tympani had evidently become thickened and hardened, and on examination with the speculum, denoted a whitish or pearly appearance, the use of the glycerine was followed by strikingly beneficial and gratifying effects. It is evident, therefore, that the application of glycerine is equally admissible, whether the tympanum be in a sound state, or whether it has been destroyed by ulceration.

A description of the composition and properties of glycerine, abridged from Turner's "Elements of Chemistry," may not be uninteresting on this occasion.

Glycerine was discovered by Scheele, and Chevreul proved its exact composition and constitution. Its formula is $C^6H^7O^5+aq$. It is found in fatty oils combined with oleic, stearic, and margaric acids; its specific gravity is 1.252. Glycerine is a syrupy liquid, miscible both with alcohol and water, insoluble in ether, slightly inflammable, inodorous, and of a sweet taste.

The most convenient mode of preparing it is by the saponification of olive oil, by means of litharge and a little water. Sulphuric acid will separate the oily matters, leaving an aqueous solution containing the alkaline salt along with the glycerine. The mixture is evaporated to dryness, and treated with alcohol, which again dissolves glycerine, and leaves the alkaline sulphate undissolved. The glycerine may be purified from oxide of lead, by passing through it a current of sulphuretted hydrogen.

Abstracts of Reports of Cases treated with Glycerine.

Miss B.——, aged nineteen; Lambeth; is healthy; has been deaf fifteen years. August 7th. This was a favorable case for the glycerine. Membrana tympani sound in both ears. The meatus externus of each ear is quite dry. A "singing noise" in both ears is continually present. Has been deaf since she had scarlet fever, fifteen years ago. The auditory passages are tender to the touch, and the lining membrane appears unusually white, and the

meatus very small. The ears were washed and dried, and the external meatus well covered with the glycerine, which proved eminently successful. In a few minutes, to the great astonishment of her parent, she could hear a whisper. She applied again on the following Monday, and then stated, apparently with great joy, that she had been to church the day previous, and had heard the voice of the clergymen for the first time in her life. In this case the glycerine was applied three times a week for six weeks; after that period it was no longer needed. A cure had been effected, and the ceruminous secretion restored. No return of the deafness has occurred.

Miss H——, Coppice-row, Clerkenwell, aged twenty years, applied to me on the 7th of August. Has good health; states that at the age of twelve years she had measles, and has been deaf to a distressing degree ever since that time. A discharge flowed from both ears during the attack of measles; when it ceased, the deafness became extreme, and when I first saw her it had continued eight years. On examination, the lining membrane of both ears was found to be hard and dry. The tympanum of each ear was sound; there was no ceruminous secretion. She states, that after washing her ear she can frequently hear better for a short time; but so soon as the organs become dry the hearing is lost. In order to make her hear at all, the voice must be raised to a very high tone indeed. On the first application of the remedy, the improvement was very marked in both ears. In six weeks she discontinued her visits, having previously stated that she was perfectly cured. I saw this patient only a few days since; she still hears well.

C. A.——, nineteen years of age. August 9. This patient was sent to me by Mr. Weedon Cooke. He is a scrofulous, unhealthy-looking lad. He says, that when he was five years old he had scarlet fever, and soon after a slight discharge flowed from his ears. His mother states that this discharge was highly offensive; at that time there was very slight deafness. This discharge continued, varying in quantity, for six months, when it ceased, and the patient then became deaf in both ears, and the deafness has continued ever since. On examination, the membrana tympani was found to be sound in each ear, but the lining membrane of the external meatus was much thickened, hard, and of a whitish appearance. Never remembers having had

any "wax" in his ears. I stated to the medical gentlemen who were present, that I considered this to be a favorable case for the glycerine. Having prepared the aural canals, as in the other cases, the glycerine was applied, the power of hearing being extraordinarily increased. The glycerine was used many times, and always with the same successful result. When the ears are under the influence of glycerine, the patient can hear when he is addressed in an under tone of voice. But I am doubtful whether a complete cure will be effected in this case.

E. M——, Dean street. Aug. 15. Aged nine years, deaf and dumb. This child, the father said, had never been known to hear, and he believed if a pistol were to be fired near his ear, he would not take the slightest notice of it. The ears are very small. Upon examination with the speculum auris, the membrana tympani was found quite normal. The throat is well formed. The Tonsils and uvula, in situation and size, are quite natural. The ears were well saturated with the glycerine. The hearing was then tested in the presence of Mr. Whidburn, Mr. Robinson, Mr. Moorhouse, and other medical gentlemen. His name was called loudly behind him; he turned his head at each call; we then directed him to signify with his fingers the number of times he was called by his father, who was situated at the other end of the room.—That the boy heard was apparent to all present, by the accuracy with which he answered by means of signals. I saw this child several times, but we could not improve at all upon the benefit he received from our first operation. His parents have, however, commenced teaching him words. I have not seen anything of the child for some time. It is certain that he received a certain amount of benefit from the glycerine.

Miss R——, Chad's-place, Gray's-inn-road; aged eighteen years. August 15th, 1848. Is not enjoying good health; has been deaf from infancy, in both ears. The malady followed an attack of small-pox. The lining membrane of both ears is pale, hard, and unyielding to the touch of an instrument. The tympanum of each ear appears perfect; she never found any secretion in either ear; had consulted several surgeons, who had applied blisters, essential oils, &c., but without the slightest benefit. She was sent to me by Mr. Jackson. The ears were

carefully cleaned by means of cotton held within the blades of a pair of forceps, and dipped frequently in warm water. The canals were then rubbed with dry cotton, held in a like manner. Then the glycerine was applied by the same means, the cotton, well soaked in it, having been repeatedly passed backwards and forwards in each external meatus, care having been taken to apply it to the tympanum. The effect was particularly well-marked. This patient was under treatment for two months—a complete cure was effected. I heard of her a few days since, and her mother says she continues to hear perfectly.

E. P——. Aug. 16. Sent to me by Mr. Robinson, of Gower-street. Aged fourteen. Her mother cannot date her deafness to any cause; states that she has gone through the routine of children's diseases; does not recollect whether deafness followed closely upon any fever; states that she is so deaf, that she is quite useless for domestic purposes, and that she had been under treatment by many surgeons, no benefit following. The ears were quite dry; upon washing them, numbers of scales of the epidermis came away, and upon inquiry, she states that "scurf" frequently comes out of her ears; she can always hear better after washing them. From these facts, it is quite evident that deafness was, to a certain degree, due to a deficiency of ceruminous secretion. The glycerine was applied in the usual manner. Almost immediately, she heard the tick of small Geneva watch quite distinctly. The glycerice was used during six weeks, and a complete cure was accomplished.

Miss J. M——, Devonshire-street, Mile-end. August 20. Has been deaf in both ears during the last five years Cannot trace the deafness to any particular cause. There has not been any discharge. There is constantly an uneasy sensation in the ears. Membrana tympani imperforate. Not any secretion in either ear. On applying the glycerine, she heard a watch tick with both ears. In this case the patient cannot hear without using the glycerine. The condition of this patient remains stationary.

Mrs. D——, aged forty-eight, White Horse Lane, Stepney. September 3d. Is very healthy; sanguine temperament. States that for forty years she has been almost deaf in the right ear, from the effects of a blow given by

her school-mistress. She can hear slightly in the left ear, but is constantly annoyed by a singing noise, and sometimes there is a dull pain over the mastoid process. She has not had fever. There has not been any discharge from the ears, except just after the time when the blow was inflicted, when there flowed a thin fluid from the right ear for about three months. When the discharge ceased, the deafness commenced, and has continued from that period. Upon examining the membrana tympani of the affected ear, no lesion in it could be discovered. The canal of the left ear was quite dry, and without any secretion. She states she can hear with both ears better in wet weather. Upon the application of the glycerine in the usual way, she heard the tick of a watch with both ears, but most distinctly with the right. Previously this had been the deaf ear. The glycerine has been repeated many times, and its use is still continued with the same success. This case was one of the most interesting that I have seen.

Mrs. P. O——, Adelaide-terrace, Islington, aged fifty-six years. September 3, 1848. Has been deaf thirty years; dates the malady from a very severe attack of rheumatism in the head. The meatus of each ear is exceedingly hard, and the membrana tympani much thickened, and of a pearly whiteness; not the least secretion. The membrana tympani cannot be touched without causing pain to the patient; many means of relief had been tried, but without effecting any improvement.

The auditory canals were carefully washed and dried, and then coated with glycerine by means of a camel-hair brush. An improvement in the state of the patient's hearing was very soon manifested. Her son, who accompanied her, said, that for years it was painful to converse with her. Knowing how great was her defect of hearing, she seldom attempted to provoke conversation.

When the glycerine had been introduced a few minutes her son addressed her in an ordinary manner, and to his astonishment she heard him perfectly. In a few days afterwards she could hear carriages distinctly, and the noise made by the wheels passing over the stones was painfully unpleasant to the newly-excited organ. She also heard thunder distinctly, not having previously heard it for thirty years. The glycerine still acts effectually; but when

her ears are not under its influence, she is as deaf as ever. The hearing continues distinct by applying the glycerine twice a week. If she removes the glycerine, and renders the auditory passages dry, the patient becomes quite deaf. The relief obtained while the ears are under the influence of glycerine is very great—an interesting fact, when it is recollected that the deafness of the patient had been of thirty years duration.

M. T——, Tottenham-court-road, has been deaf eight years. Sept. 4th, 1848. He cannot refer its existence to any precise cause. The aural canals are quite dry; the meatus is very large, and the membrana tympani is very easily seen, and found to be quite sound. This patient states that he is in the habit of moistening his ears frequently during the day, always hearing immediately after. From this statement, the success of the glycerine promised to be certain. Not having any glycerine by me at the time, I merely moistened the ears with water, when the hearing was immediately much improved. I then carefully dried both ears, and the power of hearing again relapsed to its former low degree. On the following morning the patient again attended, the glycerine was applied, and the effect produced was even greater than had been anticipated. The patient always receives the same amount of benefit from the glycerine, and the force of its action is as evident now as when it was first used. The beneficial effects produced by each application of the glycerine continue for six days. I do not believe that any cure will be effected in this case, as it is probable he will always be obliged to use the glycerine.

Mrs. S——, Greenwich, aged thirty-eight years. Dec. 15th. Considers her deafness to have been caused by a descent in a diving-bell; she is deaf in both ears, which presented the usual appearance in such cases. The aural canals are hard, polished, and dry; she is so exceedingly deaf that the tone of the voice must be very considerably raised to make her understand. After the glycerine had been applied, she conversed with the friend who brought her in a tone of voice ordinarily used in common conversation. This was a very marked and successful case.—*London Lancet.*

Sulphate of Phyllerine.—M. Jachelli, of Ferrara, has lately added this alkaloid to the list of febrifuges; it is obtained from the well known evergreen shrub, *Phyllerea Latifolia*. It was known, before the researches of Dr. Jachelli, as a cooling astringent, but it is now found to possess the same active anti-periodic properties as others of its class, the ash, the olive, etc.

An extensive series of experiments have been made since the year 1825, on the action of this alkaloid in agues, by Dr. Jachelli. He has compared its operation with that of—1st, a powder of the young leaves and twigs, in doses of 30 grains during the intermission; 2d, a simple decoction of the plant to 60 of water, down to one-third, and given in large doses also during the intervals; 3d, with a compound decoction formed by adding 30 minims of dilute sulphuric acid to the preceding. The sulphate, in doses of from 12 to 15 grains during the apyrexia, has evinced its superior activity over other preparations of the phyllerea; thus of 20 patients treated with the sulphate, 20 were cured; of 13 to whom the powder was administered, 11 were cured; of 18 to whom the compound decoction was given, 14 were cured; of 16 who took the simple decoction, 7 were cured.—*Bulletin General de Therapeutique.*

Mesmerism in Holland.—The supreme court of the Netherlands has just given a verdict which runs pretty nearly as follows:—"A magnetizer who employs a person, who, during sleep, points out remedies to the patients who come for advice, exercises medicine illegally, when unprovided with a diploma." "It is no excuse for him to be paying for a license as a magnetizer." The courts of Liege and Brussels have done more still; they have found a verdict against a magnetizer for administering magnetized water.—*Belgique Judiciare.*

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UNIVERSITY OF LOUISVILLE.

Clinical lectures are now delivered six mornings in the week, at the Marine Hospital, to the medical students of the University of Louisville. The Dissecting Rooms are also open to students, and classes are already engaged there. Several courses of lectures preliminary to the winter course are about to be commenced. The regular lectures in the institution will begin on the first Monday in November. The number of students in the city is as large as ever it was thus early in the season.

DEATH OF EMINENT MEDICAL MEN.

The present year is remarkable for the mortality among the eminent professional men of our country. Some months ago it became our melancholy duty to notice the premature demise of Prof. Barbour, of St. Louis. Since that time the profession in every quarter of the land has been called upon to deplore the loss of valuable members. Among those who have been recently called away from the scenes of their labors and usefulness we have now to announce the names of Harrison, Brigham, and Butterfield.

The name of Professor Harrison, of Cincinnati, is familiar to the readers of the Journal. As an author we have had frequent occasions to speak of him, and he was equally well known as a learned and elo-

quent teacher in the medical schools of a neighboring city—first in the Cincinnati Medical College, and more recently in the Medical College of Ohio. At the time of his death he held the chair of Materia Medica and Therapeutics in the latter institution, having been transferred from the chair of Theory and Practice in the late reorganization of the Faculty. As a man and a teacher, Dr. Harrison was noted for his earnestness. His temperament was ardent, and he entered with the utmost zeal into whatever engaged his attention. No one could listen to him while speaking, whether in private circles or in public discussion, without a conviction that he felt himself to be the advocate of truth; and what he believed to be the truth he was ready, at all times and in all places, fearlessly to maintain. This earnestness of character, amounting to enthusiasm, his zeal for every measure tending to elevate his profession, his great industry, and the high moral tone which pervaded all his discourses, rendered Professor Harrison a valuable teacher, and his loss is one which the whole profession may well deplore. At the meeting of the Medical Association in Boston he was elected one of the vice presidents of that body, having at the previous meeting in Baltimore been appointed chairman of the committee on American Medical Literature, on which subject he read a report to the Association at its last meeting. He died in the prime of professional life, a victim to the epidemic which has swept away so many of his brethren. A more detailed biographical notice of the deceased is due to his elevated position and distinguished services, and will no doubt be prepared by his colleagues.

Dr. Brigham, who, at the time of his death, was Physician to the Asylum for the Insane, at Utica, N. Y., had won a wide celebrity by his writings on diseases of the mind, to which class of affections he had devoted the labors of his life. His authority is as often quoted by European writers as that of almost any other American author. The services which he has rendered to the unfortunate insane are very great, and he will have a place among those who have contributed to the remarkable progress of that department of practical medicine which our age has witnessed

Professor Butterfield, of Columbus, Ohio, was editor of the Ohio Medical & Surgical Journal, the publication of which was commenced at Columbus about a year since, and in the management of which, as has been well remarked by a cotemporary, "he exhibited a combination of the peculiar talents required for such an office." He died of consumption, under the pressure of which he wrote most of what ap-

peared in his journal from his pen, "*hoping*," as he expressed it, "all the while for better times." Dr. Butterfield was formerly of Lowell, Massachusetts, but from the origin of the institution occupied the chair of Practice of Medicine in the Starling Medical College, at Columbus.

We will not close these notices without allusion to a name, unknown indeed to fame, but highly honored in the sphere where his useful labors were performed. Dr. James M. Jetton, of Murfreesborough, Tennessee, died of cholera early in August last, in the neighboring town of Lebanon. On hearing that one of the physicians of that afflicted town had perished by the epidemic and that nearly all the rest were disabled by it, in consequence of which the citizens were suffering for the want of medical aid, he at once quitted his home and practice and, with his wife, repaired to the scene of suffering and danger. In two days after he reached the infected spot his wife sickened with the pestilence and died. In a short time he was himself seized with the disease, which, owing, in part perhaps, to the lack of proper professional care, proved fatal in a few hours. Dr. Jetton had prepared himself carefully for the duties of medical practice, and, had he been permitted to pass safely through the epidemic to which he exposed himself, would have attained in a short time to an enviable rank in his profession.

SUBSIDENCE OF CHOLERA.

From all parts of the country we receive the gratifying intelligence of the decline of this destructive epidemic. Louisville, it is known to our readers, has experienced only the slightest visitation of the disease. For more than a month past, not a case has been reported in the city, and our citizens, at present, enjoy the most perfect exemption from complaints of every form and grade.

FOSSIL ELEPHANT.

The remains of an elephant were lately exhumed in Vermont, have been submitted to the inspection of Professor Agassiz, who states that it is the first true elephant found in a fossil state in the Northern States. The elephant is readily distinguished from the mastodon, found in so many parts of our country, by the shape of the teeth, from the form of which organs the latter animal takes its name.

SOUTHERN MEDICAL REPORTS.

We owe our friend, Dr. E. D. Fenner, an apology for having so long neglected to call the attention of our readers to a publication which he proposes to commence in New Orleans during the ensuing year. In his prospectus he states that his object in establishing such a work is to "collect and present in a durable form the observations of physicians residing in different parts of the Southern States." It is to be made up of *general* and *special* reports; the first of which will contain the meteorology, medical topography and prevailing diseases throughout the year; the second will be devoted to extraordinary cases, surgical operations, &c.

These reports are to be placed in the hands of Dr. Fenner by the first of January, and will be issued in a neatly bound volume so soon thereafter as the work can be executed. In addition to these original papers, each volume will also contain a brief retrospect of the latest discoveries and improvements contained in the medical journals of the year.

Physicians cannot fail to perceive the value of such an annual summary, and we shall be glad to learn that the encouragement offered has been such as to induce Dr. Fenner to proceed with its publication.

DISCOVERY OF A NEW CAVE IN KENTUCKY.

Professor Horsford read to the Scientific Association, at the late meeting in Cambridge, the following account of a new cave found in Kentucky:

This cave was discovered, a few weeks ago, in Kentucky, about twelve miles distant from the celebrated Mammoth Cave, and a few miles from Bowling Green, at the mouth of Green river. The discoverer, Mr. S. G. Stevenson, of the latter place, informed me that he had penetrated five miles, where the cave was still extending; and it is more than probable that it will prove the largest cave known. It abounds in a variety of beautiful avenues, and the stalactites and stalagmites, and other incrustations, are there found in every form. A few small samples were inclosed in a letter to me; the one proves by analysis, to be a sulphate of alumina, and the other a colcothan. The alumina does not contain either the potassa nor the ammonia, but forms a double salt with the soda; although I have not definitely ascertained the existence of the base (soda). I have satisfied myself that it does not contain either of the other bases, and that, from its permanent crystalline condition, it cannot be a pure sulphate of alumina, without a double base—this form-

ing a deliquescent salt; also, from the fact that the whole country abounds in saline springs, brings the conclusion that it is a soda-alum. Within two miles from the new cave a regular stratum of this soda-alum has likewise been discovered. I am in daily expectation of a collection of specimens, which I requested to be forwarded by express, not alone of all the minerals, fossils, and incrustations, but also of any reptiles or fishes that might be discovered in the cave; and regret much that they have not yet come, in season to present to the present meeting.

NEW WORK ON NATURAL HISTORY.

Professor Troost, of the University of Nashville, who has been long engaged in the study of the geology of Tennessee is about putting to press a quarto volume on the Crinoids of that State. It is to be published in Boston, and will form a work of rare interest to the naturalist, and reflect credit upon the science of our country. Dr. Troost has been singularly successful in collecting the remains of this beautiful race of animals, and his forthcoming volume will be found to embrace a greater number of species than was known to the world before. His list comprises fourteen genera and about ninety species, nearly all of which have been found within the limits of Tennessee. The specimens from which the drawings for his work have been made are very perfect, which will enable him to give a picture of the Crinoidea more complete and beautiful than any author has yet exhibited.

PROLONGED INANITION.

Dr. Samuel H. London, of West Point, Tennessee, communicates to us the following case of prolonged inanition, in a hog, which, although not quite so remarkable as the instance often quoted of the pig buried under the chalk cliff in England, is extraordinary enough to entitle it to a place among the rare cases in physiology. Dr. L. says:

"A hog weighing about 190 pounds, the property of Mr. James Kelly of this neighborhood, by accident got wedged in between two logs and in that situation remained confined, without food or drink, for *ninety-six days*. When released the weight of the animal was reduced to *thirty* pounds, or more than five-sixths. The accident occurred during the past winter. At this time (June 10th) the hog is alive and as thrifty as any other on the farm."

MISS BLACKWELL, M. D.

We learn from the Buffalo Medical Journal, that Miss Blackwell, the female graduate of Geneva College, is now, with praiseworthy assiduity, prosecuting her professional studies at the *Hopital de Maternite*, in Paris.

CHLOROFORM EXTERNALLY APPLIED.

The following examples of the successful application of chloroform over the seat of pain, which have lately come under our observation, appear to us worthy of record.

Mrs. ——, a respectable lady had contracted lues from her child, to whom the disease had been communicated by a black nurse. Her physician for a long time mistook the character of the complaint both in her child and herself; but when its true nature was revealed he soon succeeded in curing the latter, as well as the nurse. We saw the lady a year after she had been under medical treatment, and at that time she had ulcers on the scalp, and was suffering from most acute neuralgic pain of the side of her head, which grew worse as the day declined and rendered her nights sleepless and wretched. We advised the local application of chloroform. Thirty drops were placed on a cloth which was kept in close contact with the head, and this was renewed from time to time until anæsthesia was induced. The effect was prompt and most satisfactory. The night following the first application of the remedy was one of comfort, and the appearance of the patient, next morning, proved that she had enjoyed refreshing sleep. The use of the remedy was continued for a few nights; but before an ounce of chloroform had been consumed she was free from the pain, which, in three months, has not returned.

The character of the next case was entirely different, though the result was quite as satisfactory. A colored woman had a tooth extracted in September. The operation was followed by inflammation of the lower jaw, which extended to the tonsils, and made deglutition impracticable. She was bled, and afterwards a poultice, on which half a drachm of chloroform had been dropped, was applied to her throat. In half an hour, after the renewal once or twice of the anesthetic, she became easy, fell asleep, and when she awoke, a few hours afterwards, found that she could swallow. Remedies were then administered, and the patient has recovered. No doubt the bleeding contributed to the re-

moval of the cause which obstructed deglutition; but we have as little doubt that chloroform also had a large share in the result.

MEMPHIS MEDICAL COLLEGE.

It has been publicly announced by some of the professors in the Memphis Medical School that its organization has been broken up and its operations for the present suspended. This is a catastrophe for which the public could hardly have been prepared. With so bright a promise as the institution gave a year ago it was not to be expected that it would meet with so sudden an eclipse. But there is much else in our changeful world besides the "spring of love" to remind us of

> "The uncertain glories of an April day,
> Which now shows all the beauties of the sun,
> And by and by a cloud takes all away."

TRANSYLVANIA MEDICAL JOURNAL.

A new periodical, with the above title, under the auspices of the Medical Faculty of Transylvania University, and edited by Professor Ethelbert L. Dudley, has been commenced at Lexington, and is to be published in bi-monthly numbers. We cordially welcome our young cotemporary into the field and wish it a long and prosperous career. Twenty-two years ago a predecessor, bearing nearly the same name, was ushered to public notice under auspices similar to those which attend the present enterprise. Under various editors, but with unvarying fortunes, it struggled hard against the tide for years, and was finally discontinued. What was its fate has been the fate of nearly every journal that has succeeded it on our side of the mountains. At first, contributors write and subscribers pay with encouraging punctually; but anon the novelty wears off; the hippocrene of many a writer runs dry, and the "patrons" forget that publishers and printers are men, and like other mortals must be clothed and fed. We hope such will not be the fate of the young "phenix," at Lexington, but that the spirit with which it starts upon its course will be maintained and improved. The first number contains several articles of interest, and its whole appearance is promising. If we were in a captious humor there are some things in it which we might find occasion to criticize; but we prefer to pass these over in silence and to give the new candidate for public favor a friendly greeting on its first appearance upon the stage.

QUACKERY AND THE LEGISLATURE OF OHIO.

Under this head, the Ohio Medical Journal noticed some time ago the triumph of the Medical College of Ohio over its neighbors, the Thompsonians, Eclectics, and Homœopathists. The latter combined in an effort to obtain access to the Cincinnati Hospital, at present granted by the legislature exclusively to the Ohio Medical College. The privilege asked for was voted by the House, but the Senate wisely rejected the bill. All friends of medical science will rejoice at this result. Quackery in that vote of the Senate of Ohio received a merited rebuke.

ANNALIST.

The editor of the Annalist, Dr. N. S. Davis, having accepted the appointment of Professor of Physiology in the Rush Medical College, at Chicago, Illinois, that journal has been discontinued. Dr. Davis has had much to say heretofore concerning the "reforms" needed in American schools of medicine. It remains to be seen what will be the effect upon his mental optics of a more intimate relation to those institutions. We venture to hope that on a better acquaintance with them he will deem more charitably of their deserts.

NEW ORLEANS MEDICAL JOURNAL.

This valuable journal appears in a new dress, having entered upon the sixth volume. We refer to it now for the purpose of recommending it to our readers resident in the South as a journal especially suited to their wants. At every stage of its existence it has been conducted with judgment and ability, and claims one of the best corps of contributors in the country. It is now under the sole guardianship of Dr. Hester.

DELINQUENCIES.

We are requested by the Publishers and Proprietors of the Journal to call the attention of subscribers to the "beggarly list" of payments to be found on the cover of this number. We cannot doubt that a sight of that list will speak more emphatically to the delinquent than any words that we could use. There it stands.

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